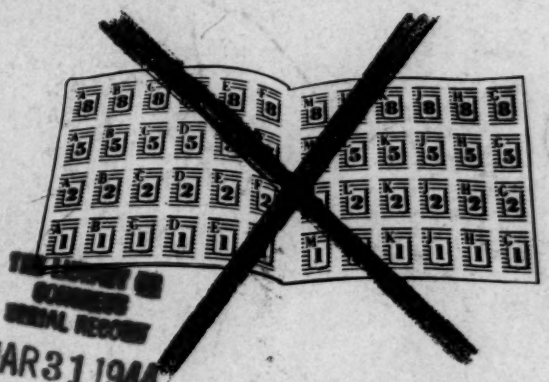
COTTON

SERVING THE

Textile Industries

Misfortune is

NOT RATIONED!



MAR 31 1944

Your Employees daily face emergencies that hit without warning . . .

Accidents, Sickness, Death in the Family, Death of the Employee, trips to the Hospital, Operations . . .

All of them income-robbing and mentally upsetting in imagination as well as reality.

DO YOUR EMPLOYEES ENJOY SUCH COMPLETE PROTECTION AS THIS?

HUMAN SECURITY

- Death in family
- Loss of time due to Sickness or Accident
- Hospitalization or operation when necessary
- Aiding dependents upon death of employee
- Maternity benefits

EMERGENCY INCOME

BUT WHAT CAN EMPLOYERS DO ABOUT IT?

Many thousands have adopted a scientific group protection plan that helps strengthen Employee morale, builds loyalty, tends to increase production.

More and more Employers are discovering that the installation of a Provident HUMAN SECURITY program, as briefly outlined here, pays dividends in improved Employer-Employee relations.

These plans operate in a choice of three methods:

Employers paying premiums
Employer-Employee cooperation
Employees paying premiums on payroll deduction plan

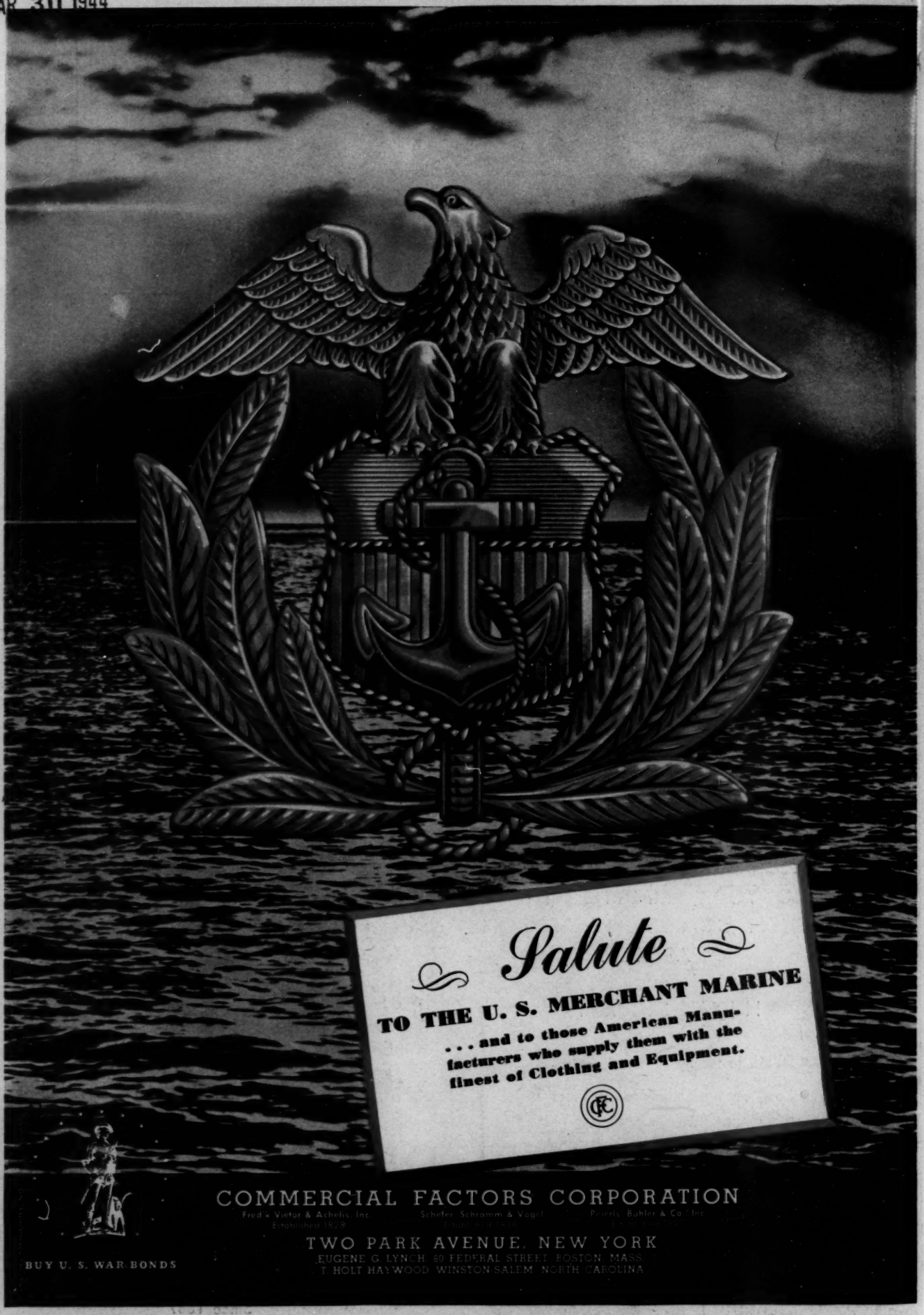
PROVIDENT

LIFE AND ACCIDENT INSURANCE COMPANY

CHATTANOOGA 2 Since 1887 TENNESSEE

• Now Protecting over ONE MILLION Workers and Their Dependents •

MAR 30 1944


Salute
TO THE U. S. MERCHANT MARINE
. . . and to those American Manufacturers who supply them with the finest of Clothing and Equipment.
COMMERCIAL FACTORS CORPORATION
Fred'k Vietor & Achelis, Inc. Established 1828
Schefer, Schramm & Vogel Established 1848
Pearis, Buhler & Co., Inc.
TWO PARK AVENUE, NEW YORK
EUGENE G. LYNCH, 80 FEDERAL STREET, BOSTON, MASS.
T. HOLT HAYWOOD, WINSTON-SALEM, NORTH CAROLINA
BUY U. S. WAR BONDS

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Entered as second-class matter at the Post Office, Dalton, Ga., under the Act of March 3, 1879.

Volume 108 **Number 3**

40 Per Cent More Cloth

on X Model Looms

Running 24 Per Cent Faster

Than E Models on Same Fabric

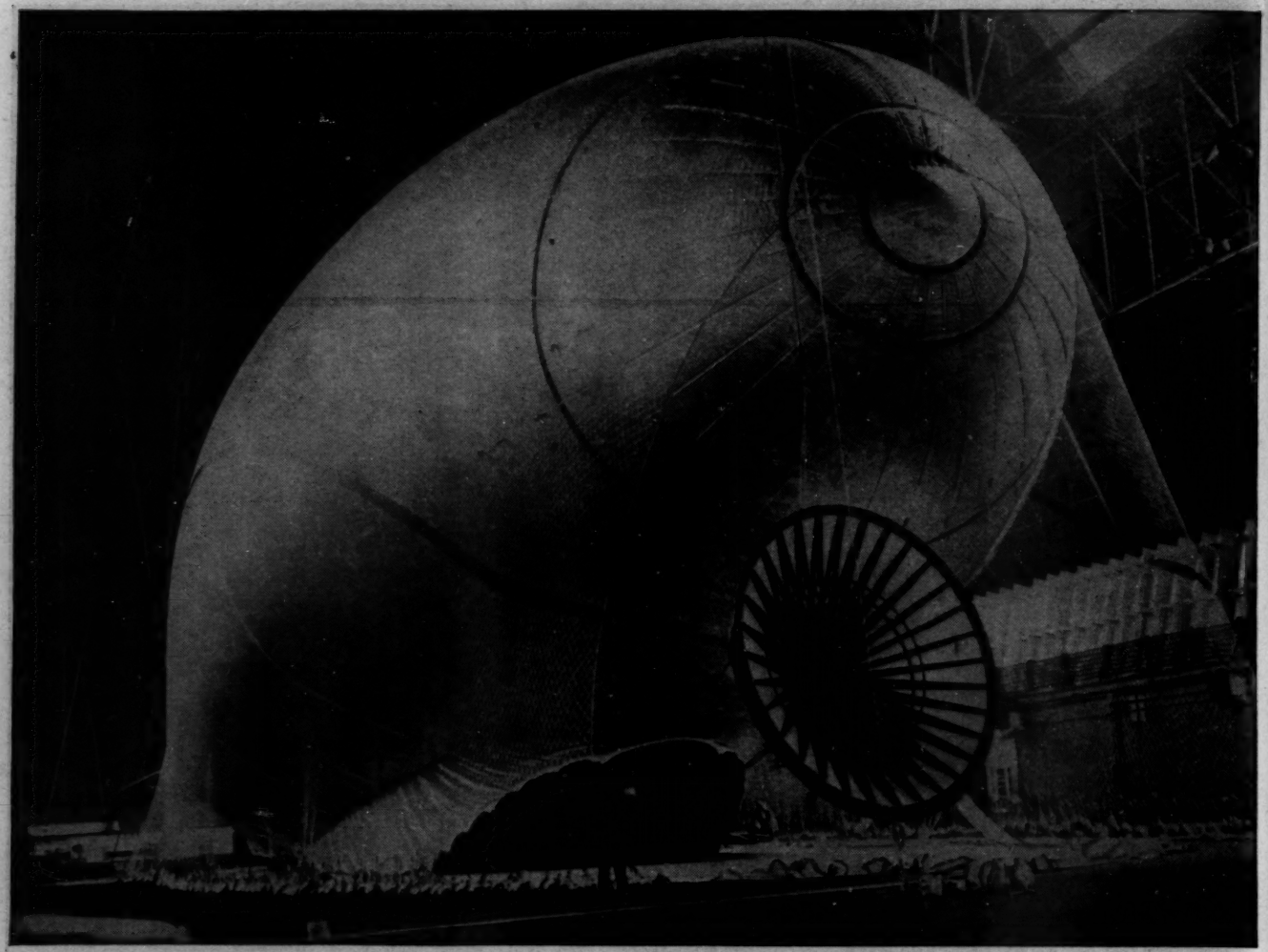
These Figures are from a Comparison of Production Sheets of More Than Eight Years of Actual Operation of Similar Lots of the Two Models of Looms by one of the Best Known Mills in the Industry.

Did you read the story in our Cotton Chats for February?

If you missed it, ask us for a copy.

Draper Corporation

Atlanta Hopedale Spartanburg



Flying Big Top!

IT takes 26,275 sq. yds. of fabric to fashion the world's largest blimp.

Producing the wartime requirements of fabric for blimps and thousands of other Army, Navy uses, textile mills operating 'round-the-clock are finding Texaco an effective aid for keeping machinery at peak efficiency.

Texaco Stazon, for looms, assures efficient lubrication with minimum spoilage of yarn or fabric due to oil stain. It stays on fast-moving cranks, etc., withstanding load shocks without splattering, creeping, dripping. Its high stability prevents excessive formation of non-lubricating deposits in bearings or enclosed housings. For loom *cams,* use *Texaco No. 919 Lubricant S.*

So effective have Texaco lubricants proved that they are definitely preferred in many fields, a few of which are listed at the right.

Texaco Lubrication Engineering Service is available to you through more than 2300 Texaco distributing points in the 48 States.

The Texas Company, 135 East 42nd Street, New York 17, N. Y.

THEY PREFER TEXACO

★ More Diesel horsepower on streamlined trains in the U. S. is lubricated with Texaco than with all other brands combined.

★ More locomotives and railroad cars in the U. S. are lubricated with Texaco than with any other brand.

★ More revenue airline miles in the U. S. are flown with Texaco than with any other brand.

★ More buses, more bus lines and more bus-miles are lubricated with Texaco than with any other brand.

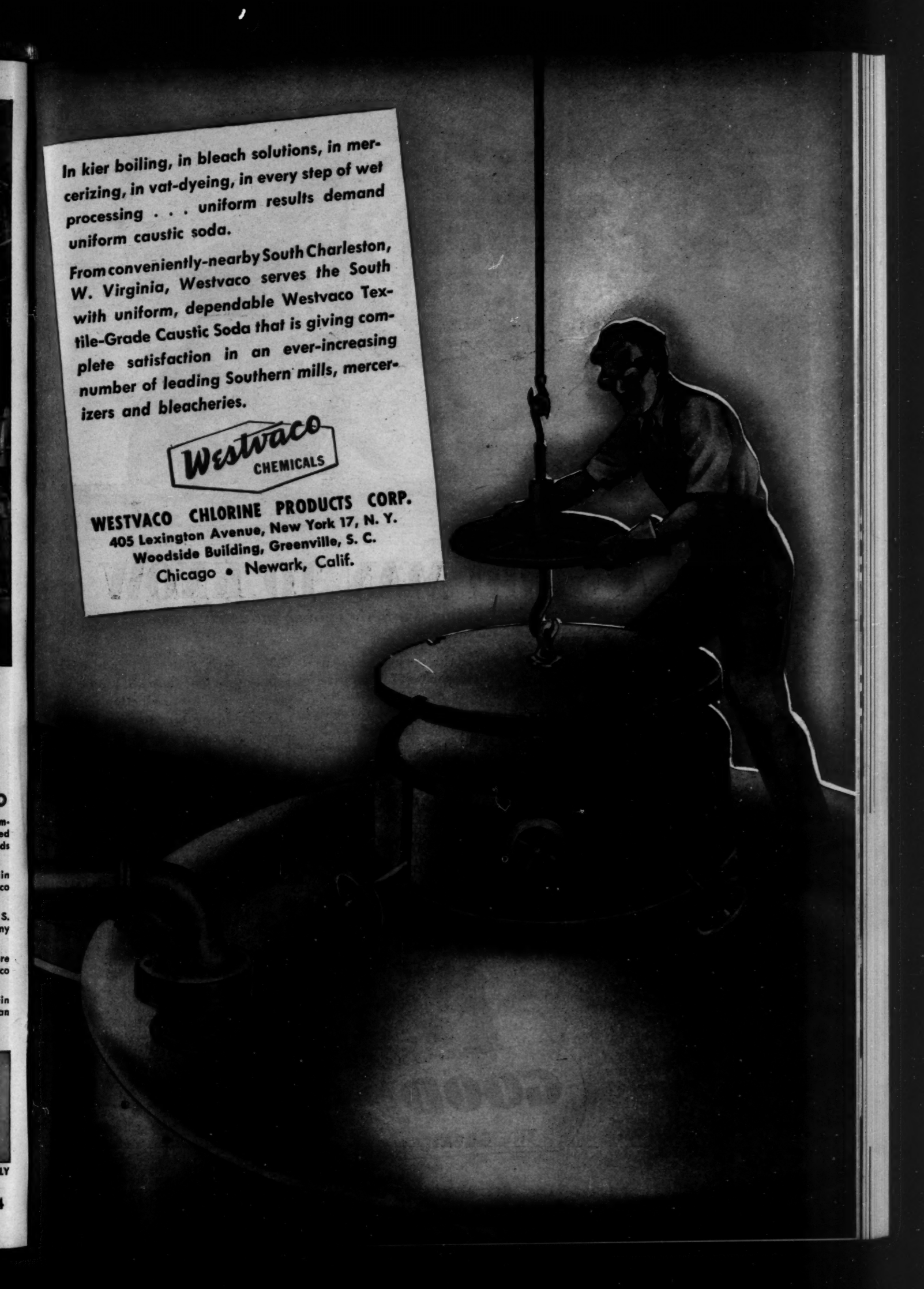
★ More stationary Diesel horsepower in the U. S. is lubricated with Texaco than with any other brand.

TEXACO

TEXACO Lubricants

FOR THE TEXTILE INDUSTRY

TUNE IN FRED ALLEN EVERY SUNDAY NIGHT—CBS ★ HELP WIN THE WAR BY RETURNING EMPTY DRUMS PROMPTLY


In kier boiling, in bleach solutions, in mercerizing, in vat-dyeing, in every step of wet processing . . . uniform results demand uniform caustic soda.
From conveniently-nearby South Charleston, W. Virginia, Westvaco serves the South with uniform, dependable Westvaco Textile-Grade Caustic Soda that is giving complete satisfaction in an ever-increasing number of leading Southern mills, mercerizers and bleacheries.
Westvaco
CHEMICALS
WESTVACO CHLORINE PRODUCTS CORP.
405 Lexington Avenue, New York 17, N. Y.
Woodside Building, Greenville, S. C.
Chicago • Newark, Calif.

A GOOD MAN TO KNOW

—when you're buying synthetic rubber industrial products

Now with the mandatory conversion of industrial rubber products to synthetics, you need expert counsel more than ever in selecting the correct grades and constructions for your particular service.

That is why more and more operating men are guided by the recommendations of the G.T.M. — Goodyear Technical Man. An expert in industrial rubber, he is backed by Goodyear's twenty years' experience in developing synthetics and by the authority of the world's finest rubber research laboratory.

Long before the war, Goodyear was building many industrial products from synthetic rubber, based on knowledge that goes back to the granting of Goodyear's first synthetic patents in 1927.

As a result, the G.T.M. today is able to specify synthetic rubber products of standout quality. Some, especially for service where exposure to oil, gasoline or solvents is involved, set new performance standards.

Others, like the new Goodyear Style SS Conveyor Belt for abrasive conditions, are comparable to the best prewar quality. And still others, like our new Resoweld tank lining, perform tasks never handled satisfactorily by natural rubber.

Yes, it will pay you to consult the G.T.M. — if you want industrial rubber products that will maintain your speeded-up production schedules. To bring him to your office, phone the nearest Goodyear Industrial Rubber Goods Distributor — or write Goodyear, Akron 16, Ohio or Los Angeles 54, California.

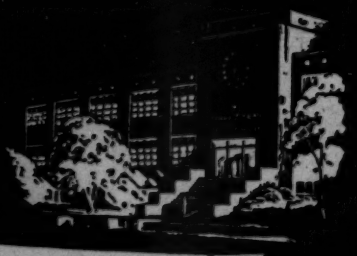
Resoweld—T.M. The Goodyear Tire & Rubber Company

GOODYEAR INDUSTRIAL RUBBER PRODUCTS

are tested and proved in the

WORLD'S FINEST RUBBER RESEARCH LABORATORY

The new Goodyear Research Laboratory, where 20 years' experience in synthetics and 46 years' skill in rubber engineering combine to produce better industrial rubber products.



GOODYEAR

THE GREATEST NAME IN RUBBER

Let's all Back the Attack with War Bonds

Use new Buying Data

TO REDUCE SELECTION AND ORDERING TIME

1/2

When you need motors and control, consult your new Westinghouse Buying Data. It will help you to select and purchase the proper equipment—in ½ *the time.*

Data, as presented, is striking in its newness. It's easier to read, easier to understand, and easier to use than any offered previously by any manufacturer.

To fit widely varying requirements, this radically new Buying Data is available in two forms:

Motor and Control Loose-Leaf Book. This is for the use of large-scale purchasers and is "tailored" to meet the needs of the individual buyer. Pricing data is always kept up to date by the issuance of new price supplements.

Bound books are suitable for use of the majority of motor and control buyers. They contain prices (correct at time of issue and satisfactory for estimating purposes throughout the books' life), dimensions, application data and descriptions. Books include:

"Motor Buying Data" covering popular types and ratings of motors (up to 100 hp), Gearmotors and M-G sets.

"Control Buying Data" listing a wide variety of controllers and accessories for direct current, single-phase, squirrel-cage, wound rotor motors.

J-90499

HERE'S HOW TO GET THIS NEW BUYING DATA

If you are a buyer of Motors and Control, chances are you have already received this new data by mail.

However, if you have not received your copy, write, wire or phone your nearest Westinghouse district office (requests will be filled through district offices only—no mailings from Westinghouse Headquarters at East Pittsburgh). Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.

Westinghouse MOTORS AND CONTROL

PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

SULFANOLE L..

WARWICK CHEMICAL COMPANY

West Warwick, Rhode Island

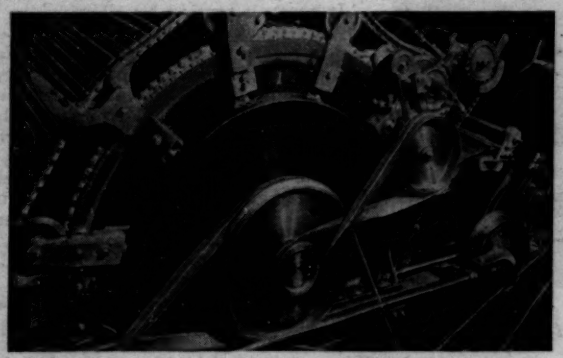
580 FIFTH AVENUE, NEW YORK · ROCK HILL, S. C.

LET A LAWYER ADJUST YOUR CARBURETOR ?

When you want legal advice, you go to a lawyer. But, when the carburetor on your car needs adjusting, you get a good auto mechanic. It takes a *specialist* to do the job right!

GILMER SPECIALIZES IN BELTS

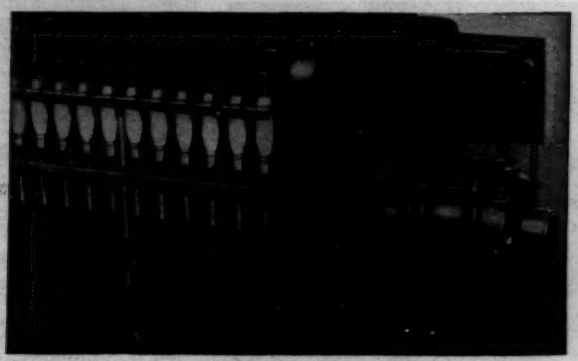
Gilmer has a complete line of belts for the Textile Industry, engineered by specialists . . . the right belt for every power transmission job. And the Gilmer Engineering Staff specializes in power transmission problems. They are available for consultation without obligation. They can show you how to increase the efficiency of most of the drives in your plant by using dependable tight-gripping, slip-free Gilmers.



GILMER KABLE KORD LICKERIN BELTS

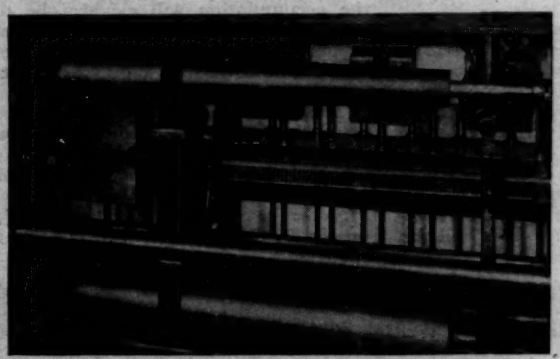
Increase production and outlast any belt on the market.

SOME SPECIAL GILMER BELTS:



GILMER V-BELTS

Deliver power from the motor to the spinning frames with maximum efficiency.



GILMER CONE DRIVE BELTS

Longer life in the toughest service and shift easily because of sturdy internal construction.

In addition, Gilmer has a complete line of Endless Round Belts for Carding Machines, Endless Cord Spinner Belts for Silk Throwing, and many others, all completely described in the handbook "Gilmer Belts for the Textile Industry." This handbook simplifies the details for specifying Belts for the great majority of drives. Write for your FREE copy today. It's yours for the asking.

Gilmer BELTS

L. H. GILMER COMPANY, Tacony, Philadelphia 35, Pa. • *The Oldest Firm of Rubber Fabric Belt Specialists*

THIS IS NO. 44 OF A SERIES ON

GETTING THE MOST FROM WINDIN

Information about winding designed to show improvements in winding equipment and new ideas in the winding operation

NO. 90 TENSIONS FOR YARN DELIVERED FROM A VERTICAL, OVEREND SUPPLY

We are frequently asked to recommend the proper tension assembly for the several types of synthetic filament yarns. Naturally, our replies are pre-determined by the experiences of many mills. The opinions of mills do not always agree as to the qualifications of individual tensions, such opinions being prejudiced by long usage and continued familiarity with the kind of tension they happen to be using. It is our purpose to describe the four outstanding overend No. 90 Tensions and to specify what each is intended to accomplish.

NO. 90 REGULAR FINGER TENSION

The Regular Overhead Overend Finger Tension is used widely and successfully on all types of filament yarn.

Its action is very simple. Tension is primarily applied by weights suspended from a cord attached to the top of the movable grid. The pull of the weights causes the fingers of the movable grid to push themselves within the complementary spaces of the stationary grid, thus increasing the wrap of yarn as it passes between each set of fingers.

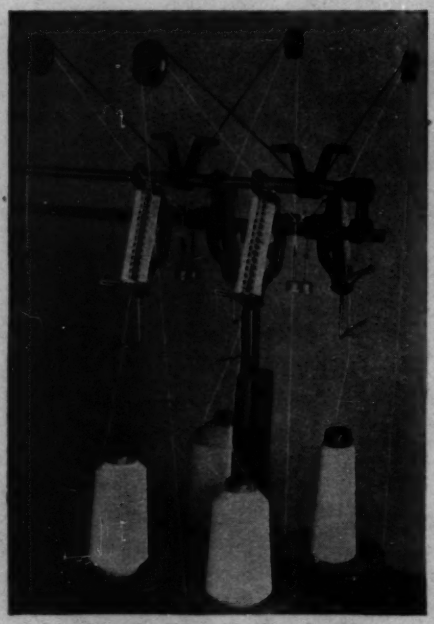


Fig. 1 Regular Overhead Overend Finger Tension

The Finger Tension is mounted on a special bracket which holds it at an angle of approximately 18° from the vertical. A compensator is always used to take up slack in the yarn created by the difference in yarn takeup speed between the top and low points of the traverse or slope of the bobbin.

Chromium-plating the grids of the Finger Tension provides durability, but they should be inspected regularly for wear.

NO. 90 ANTI-WEAR TENSION

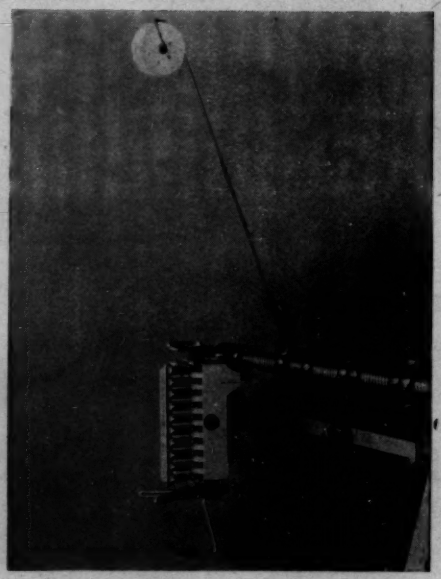


Fig. 2
Overhead Overend Anti-Wear Tension

The Overhead Overend Anti-Wear Tension is suitable for any type of rayon filament yarn, but is especially recommended for abrasive yarns.

It is similar to the Regular Finger Tension, except that its construction allows the yarn to oscillate between the two wide grids, reducing the possibility of wear. Pigtails above and below the grids have elongated slots which give the yarn freedom of motion laterally.

The Anti-Wear Tension is mounted vertically (not inclined) above the supply package. The compensator must be set so that the oscillation of the yarn will be within the breadth of the tension grids and should not, therefore, be pulled as far forward as is usual with the Regular Finger Tension.

NO. 90 DISC-QUIL TENSION

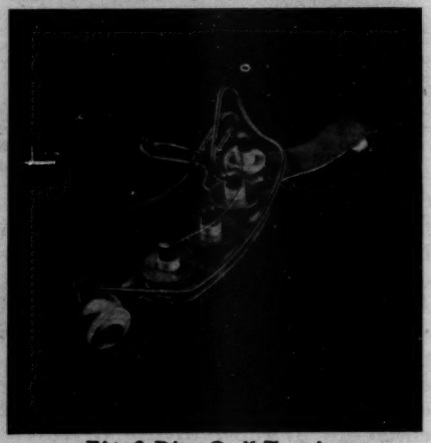


Fig. 3 Disc-Quil Tension

The Disc-Quil Tension is ideal for rayon filament yarn of 150 denier and finer.

It controls tension by allowing the yarn to pass between four sets of facing discs, which rotate as the yarn passes. Washer weights placed on the top discs, apply the desired amount of tension, progressively, to the yarn. Frictional contact with the yarn is obtained from sources which rotate, rather than remain stationary.

Some mills, handling a wide variety of filament yarn, including voile twist up to 30 turns per inch, have found this tension satisfactory for their entire range of yarns. To prevent kinks from forming in lively yarn, it can be wrapped around the anti-kink bail just before entering the first set of discs.

It is important to keep the discs clean. Lint and particles from pigmented and acetate yarn will tend to collect between the discs and also on the posts around which the discs rotate. Unless removed, the accumulation will elevate the upper discs and stop rotation—resulting in improper tension. Both discs must rotate. The bottom disc may only creep, but this is satisfactory.

The Disc-Quil Tension is not recommended for multi-filament yarns having little or no twist, since the rotating discs have a tendency to spread the filaments apart.

Note: Further information including facts on No. 90 Crepe Tension, will be sent upon request.

See our Catalog in TEXTILE YEARBOOK
43-GMW-44

"THERE'S A UNIVERSAL WINDER FOR EVERY TEXTILE NEED"

UNIVERSAL WINDING COMPANY

PROVIDENCE BOSTON PHILADELPHIA UTICA CHARLOTTE ATLANTA

*Reg. U. S. Pat. Off.

"Out of another world" comes an amazingly better Liquid Handling Pump

To look at it you wouldn't see much to "ah-h" about.

It's small. Weighs less than 4 pounds. But when you note its capacity . . . its efficiency curve . . . its performance record . . . then you begin to take notice.

You see, we designed this pump for operation in another world, high in the heavens . . . in rarefied, subzero atmospheres . . . for planes demanding fuel to maintain speeds of five miles per minute and better.

Pesky things can, and did, happen to pumps up there. But no more . . . since we perfected engine-driven pumps with relief and by-pass valves that maintain efficiency regardless of temperature . . . since we perfected fuel pump refinements which handle "dry" high-octane aviation gasoline at close to 100 per cent volumetric efficiency . . . since we developed a motor-driven booster pump with a new impeller which is approximately 20 per cent more efficient on a power consumption basis than any other now in use on centrifugal pumps of equivalent size.

By mastering these and many other aircraft pumping problems, PESCO can give you fluid handling equipment of entirely new performance. Equally improved PESCO equipment is also adaptable for all types of pumping needs; hydraulic, air, vacuum and liquid. May we tell you more about PESCO Pumps and PESCO Engineering Service?

SEND FOR THIS BOOK "Pressurized Power and Controlled Flow by PESCO". This book pictorially tells the story of PESCO equipment, manufacturing facilities and engineering service. A copy will be mailed promptly upon request.

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PESCO Products Co.
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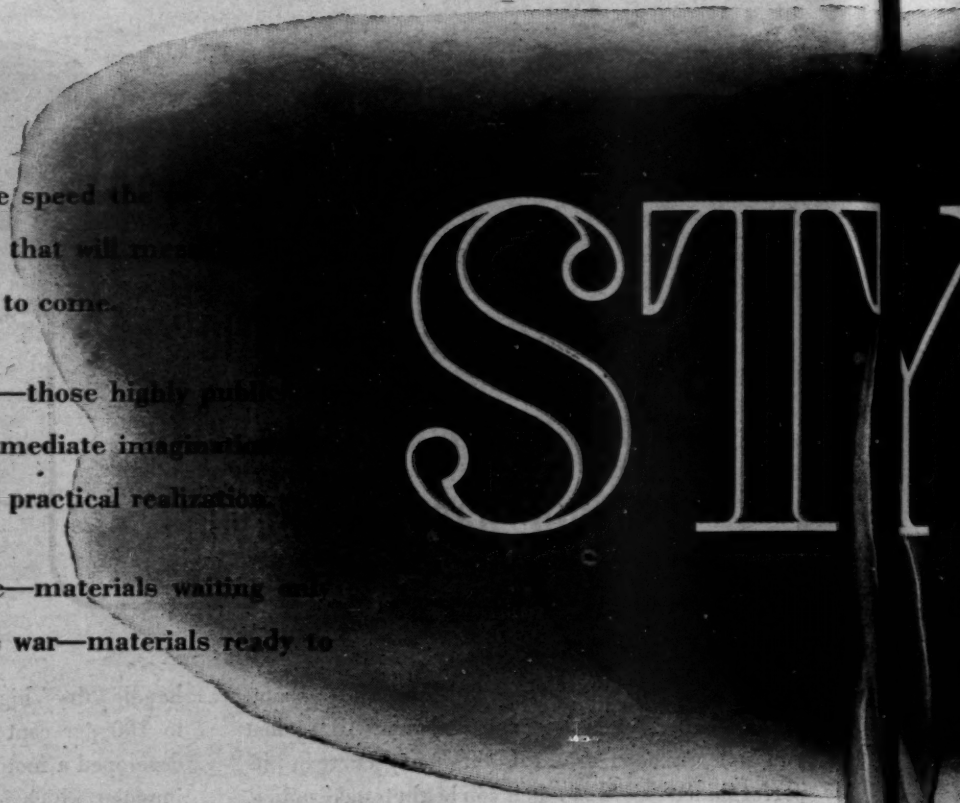
A CHEMICAL CHARGED WITH



Great things are happening as we speed the [illegible] **war . . . technical accomplishments that will** [illegible] **every American in the days of peace to come.**

We speak not of the "dream" ideas—those highly publ[illegible] **radical developments that excite immediate imagination** [illegible] **which well may be years in reaching practical realization.**

We speak of advances already made—materials waiting only for an honorable discharge from the war—materials ready to serve a world at peace.

STYRENE AND TEXTILES

Today styrene stands out as a chemical material of great promise—already contributing to the development of synthetic rubber and plastics. We are presenting this story to the textile industry now, because we believe the uses for modified styrene polymers in textile manufacture will be extensive. Styrene has already revealed desirable qualities in the production of resins for flexible coatings—with many new developments indicated. Careful study of the potentials of this material warrants your keen attention.

THE STORY OF STYRENE

Here is the story of styrene . . . a chemical achievement of such scope that it is certain to bring about profound changes in many familiar products and industries.

Styrene is one key to our huge production of synthetic rubber—the rubber we look to for millions of tires and other essential products.

Styrene, also, is the basis for a unique family of synthetic resins—

And styrene, under the demands of war, has reached a volume of production that is almost unbelievable.

This huge production of styrene will stand when the needs of war no longer exist—it will stand, ready to advance many products to greater usefulness and value.

RUBBER—AND THE FUTURE

Just what styrene's future will be in the realm of rubber only time and events can determine. But this we know: Our present and future capacity for styrene production will make us, if need be, virtually independent of natural rubber.

In a world of free enterprise—of free competition—this, alone, should work for an abundance of rubber goods at new low costs.

AND, AS A PLASTIC

As a source of plastics, styrene also promises to be available at a price so low it can be freely used to improve all kinds of products. More than likely you have already made the acquaintance of styrene in its plastic form (polystyrene). Dow pioneered this material for the past several years—supplying it to other plastic producers and the moulding industry. In fact, Dow has been the main source of polystyrene production.

Polystyrene (tradenamed STYRON by Dow and also sold under other brand names) has been used with high success for numerous products. Its high resistance to acids and alkalis makes

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN • PIONEER AND LARGEST PRODUCER ST

New York · Boston · Philadelphia · Washington · Cleveland · Chicago · St. Louis · Houston · San Francisco · Los Angeles · Seattle

REMENDOUS PUBLIC PROMISE

TYRENE

it ideal for storage battery cases, chemical apparatus and other similar applications. Possessing, also, unusual electrical insulating properties—especially at high frequencies—it is acting as special insulation for radio and other high frequency equipment, switch boxes, and the like.

Polystyrene (STYRON) is a lustrous, translucent material that can be produced in all the hues of the rainbow. It can be fashioned into exquisite pieces of costume jewelry, dress trimmings—or for home decoration in lamp bases, lighting fixtures, art pieces, and innumerable other applications.

Polystyrene may, too, lead us to new advances in the field of temperature insulation. Its future is rich in fresh possibilities.

DOW—PIONEER PRODUCER

Dow was a leader among the pioneer styrene producers. It bent its efforts to solve the main stumbling block to successful full-scale styrene production—a process assuring constant, undeviating purity.

And Dow chemists and chemical engineers found the answer to this problem—giving Dow the distinction of being the first—and now the largest—American producer of styrene and polystyrene.

When war struck—Dow was given the grave responsibility of multiplying manyfold its existing styrene production—and with the utmost speed.

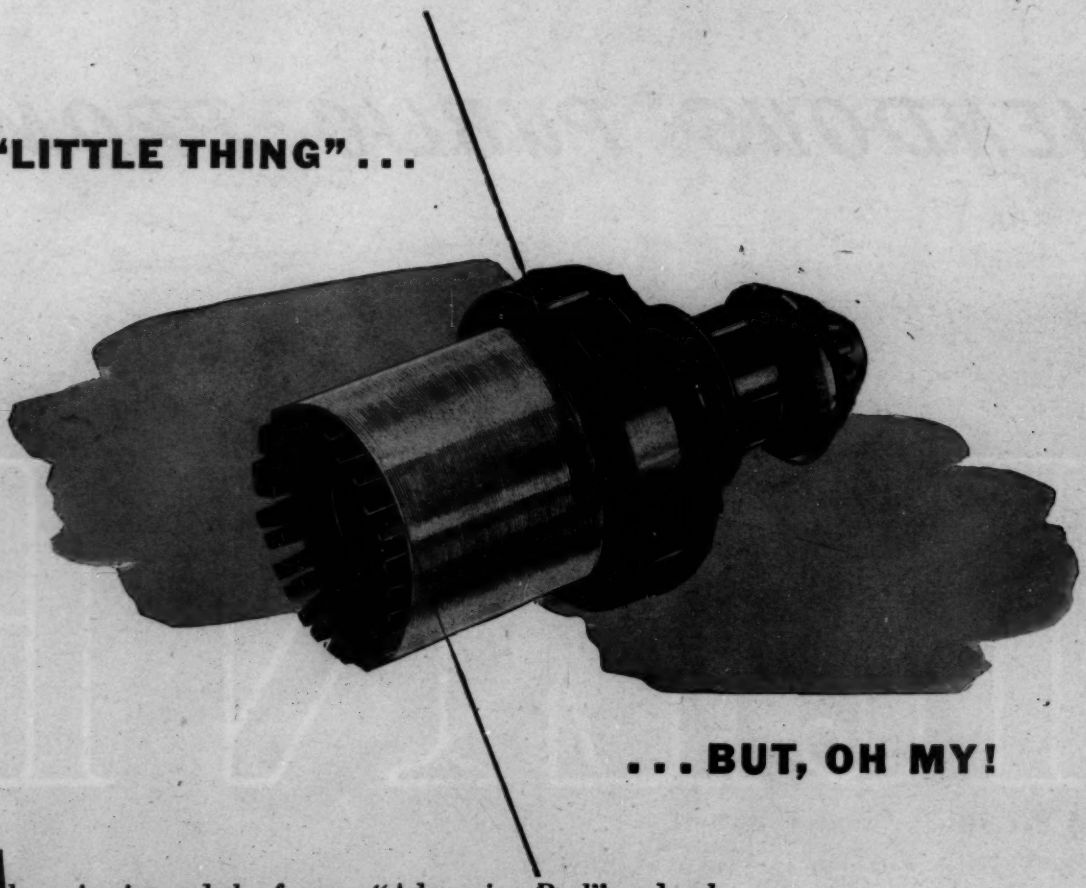
It is a matter of record that Dow completed this expansion program ahead of schedule—and is now operating four great plants, ranging from Canada to California, to turn out the huge tonnages of styrene our country needs.

To every thinking American such accomplishments on the part of industry should stand as beacons of inspiration. For developments such as these are the basis for a new, soundly prosperous America—an America of fresh opportunity—of more work for the worker and greater benefits for all. Styrene is truly a chemical that carries tremendous public promise.

DOW

STYRENE AND POLYSTYRENE (*Tradenamed* STYRON)

A "LITTLE THING"...



...BUT, OH MY!

Above is pictured the famous "Advancing Reel", a development of Industrial Rayon research and invention.

Just as an acorn makes a giant oak, this ingenious little reel built a huge new plant with intricate machines, blocks long. It gave the rayon industry a new standard of quality, "Continuous Process" Rayon Yarn. The yarn made by this new production method is so relatively knotless and free of broken filaments, that the cloth woven from it dyes evenly without streaks or filling bands, even in the difficult flat tones. And mill efficiency, on which profits depend, soars with the use of this trouble-shooting yarn.

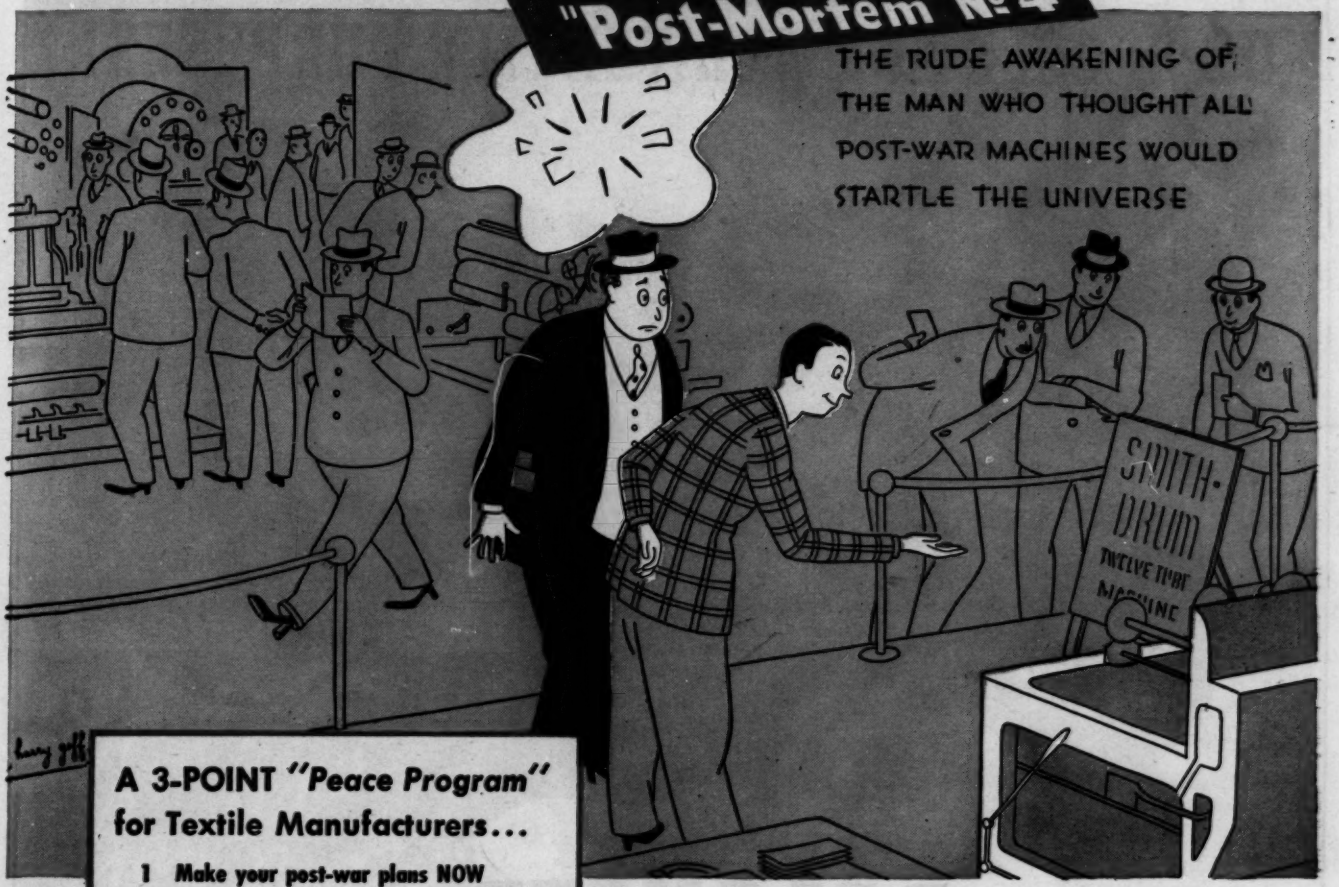
The development of the "Continuous Process" is typical of a company which has long recognized that its greatest assets are not in just plants and inventories, but in the skill and acumen of its engineers and technicians—the men whose genius makes for textile progress.

Industrial
RAYON CORPORATION
MAKERS OF
CONTINUOUS PROCESS RAYON YARN
AND Spun-lo KNIT UNDERWEAR CLOTH

*Reg. U. S. Pat. Off.

CLEVELAND, OHIO • *New York Office:* 500 Fifth Avenue

POST-WAR "Post-Mortem" No 4



A 3-POINT *"Peace Program"* for Textile Manufacturers...

1 **Make your post-war plans NOW**
don't let peace catch you without definite plans for products, markets, sales and production.

2 **Decide on new equipment needs NOW**
don't wait until the war is over before making a thorough survey of your production equipment and deciding what machines must be replaced.

3 **Order your new equipment NOW**
don't risk serious delay in securing necessary new equipment for post-war production. Metals and other basic materials will continue to be scarce for a long time after the war ends.

If you are going to need new dyeing and finishing equipment after the war, we earnestly recommend that you place your order with us *now*. Our "Post-War Purchase Plan" assures you prompt delivery when war restrictions are lifted. Write *now* for complete details of this plan.

Apparently, there are some textile manufacturers who believe that all post-war production machines are going to be completely revolutionary! Well, those fellows are in for a rude awakening! They must have forgotten that all equipment manufacturers have been up to their ears in war work for several years . . . with neither the time nor manpower for development of radically new post-war machines. For a long time after peace is declared, the entire facilities of most of us will be taken up supplying the pent-up demand.

We, like most other machinery makers, do *not* expect to have a lot of new machines that will startle the Universe! We *will* have the same dependable Smith-Drum machines for dyeing, drying and finishing that always have been way out ahead of all competition in design and performance . . . *plus some worthwhile improvements!*

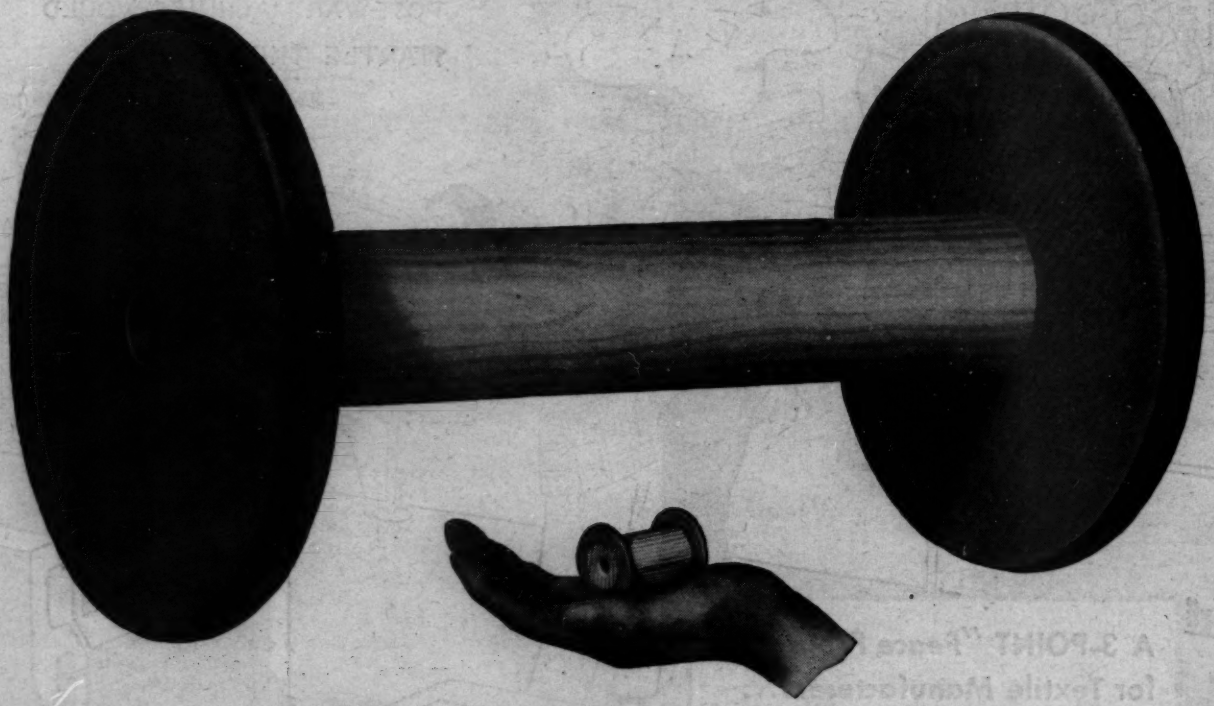
We urge every textile manufacturer to anticipate his post-war requirements for new machines and *place his order now* for delivery as soon as war restrictions are lifted. Such action *now* will prevent a long wait for needed machines and permit quick conversion to *profitable* peace-time production.

In taking advantage of our "Post-War Purchase Plan" you can rest assured that you will get the *most advanced machines of their type . . . soon* after the war. That will give you a long running start on those who are waiting to see the "revolutionary" post-war machines that won't be there. Write to

SMITH, DRUM & COMPANY
Allegheny Avenue at 5th Street, Philadelphia 33, Pa.

for hosiery dyeing, skein dyeing, package dyeing, beam dyeing, piece goods dyeing, package drying, skein mercerizing, warp mercerizing, hosiery inspection.

US SPOOLS FOR ALL TEXTILE PURPOSES!



BALANCED for True Running Operations at Increased Machine Speeds!

U S Why No. 6
Watch for More U S Whys in these pages

THE SEAL OF QUALITY AND SERVICE SINCE 1857 — US

The trend to higher speed operation in all textile lines demands accurately balanced, true running spools! Precision built, U S Spools are balanced for true running operation. They are squared and held to close tolerances on both barrel diameter and traverse. This lessens wear and tear on bolsters and spindles.

Supplied in all sizes and to all specifications, U S Spools are made from selected northern stock, nailed or bushed, with fibre or wooden heads or bases. They are finished plain, oiled or lacquered, and fitted with metal bushings and shields.

At today's high operating speeds, precision built U S Textile Accessories are your best assurance of uniform yarns. They include Bobbins, Shuttles, Spools, Cones, Cardroom Bobbins, Skewers and Rolls — embody every improvement that 86 years of manufacturing experience has proved worthwhile.

Let our mill experienced and technically trained U S Representative help you keep maintenance and operating costs down, speed up production, improve the quality of your mill output.

U S BOBBIN & SHUTTLE CO.

LAWRENCE, MASS.

PROVIDENCE, R. I. JOHNSON CITY, TENN. GREENVILLE, S. C. CHARLOTTE, N. C.

CHICAGO AGENT: Albert R. Breon, 20 E. Jackson Blvd. CANADIAN AGENT: W. J. Westaway, Montreal
ALABAMA AGENT: Young & Vann Supply Co., Birmingham

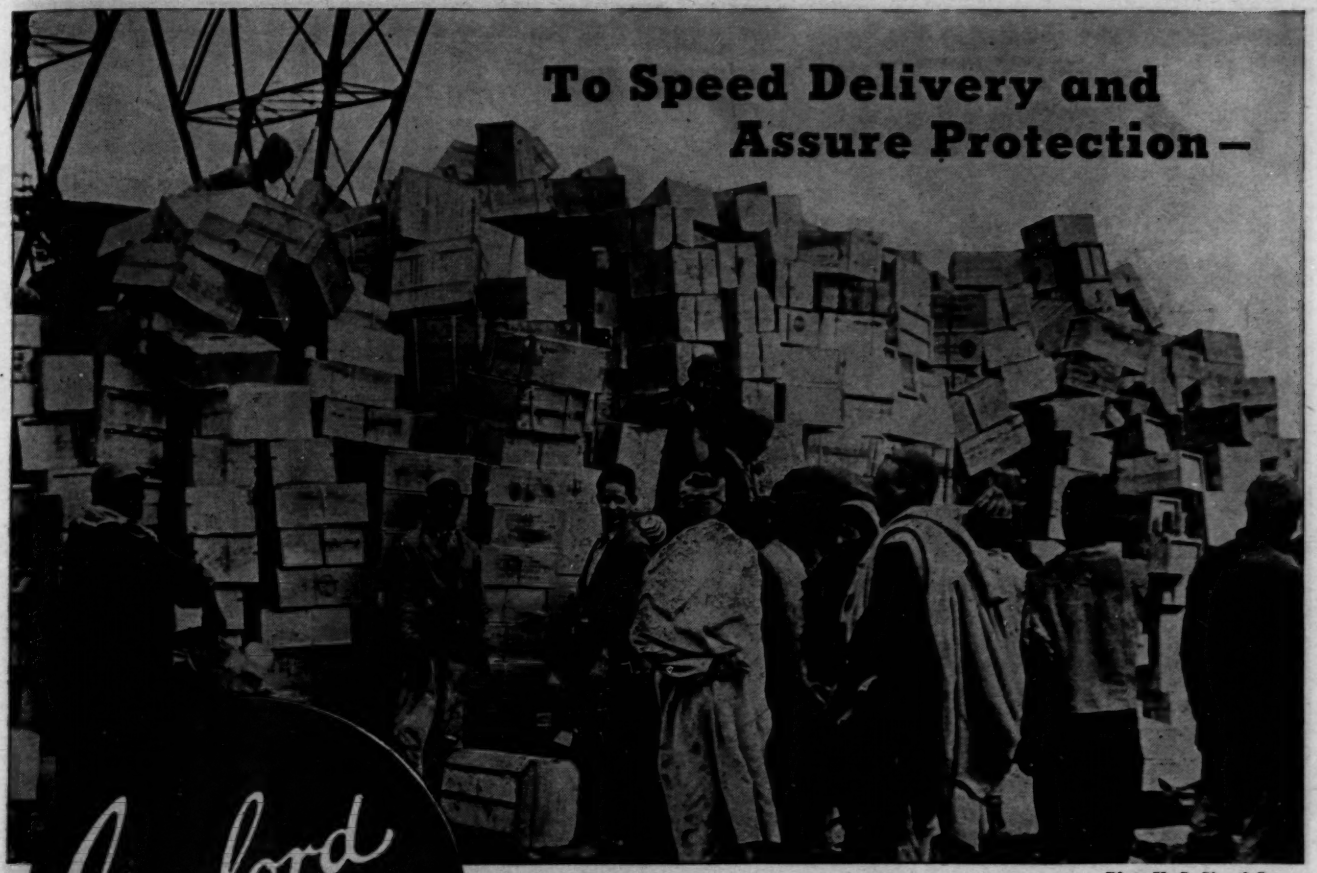


Photo U. S. Signal Corps

You can play a vital part
-- Buy More War Bonds!

Munitions and Supplies Go to War in GAYLORD CONTAINERS

Packaging problems of today's global war presented many new demands to Gaylord's packaging specialists. From the designing of special shock-proof cartons used in dropping munitions from airplanes to the production of food containers which withstand surf-borne landings and tropical moisture — Gaylord is playing a vital part in protecting and speeding delivery of war materiel.

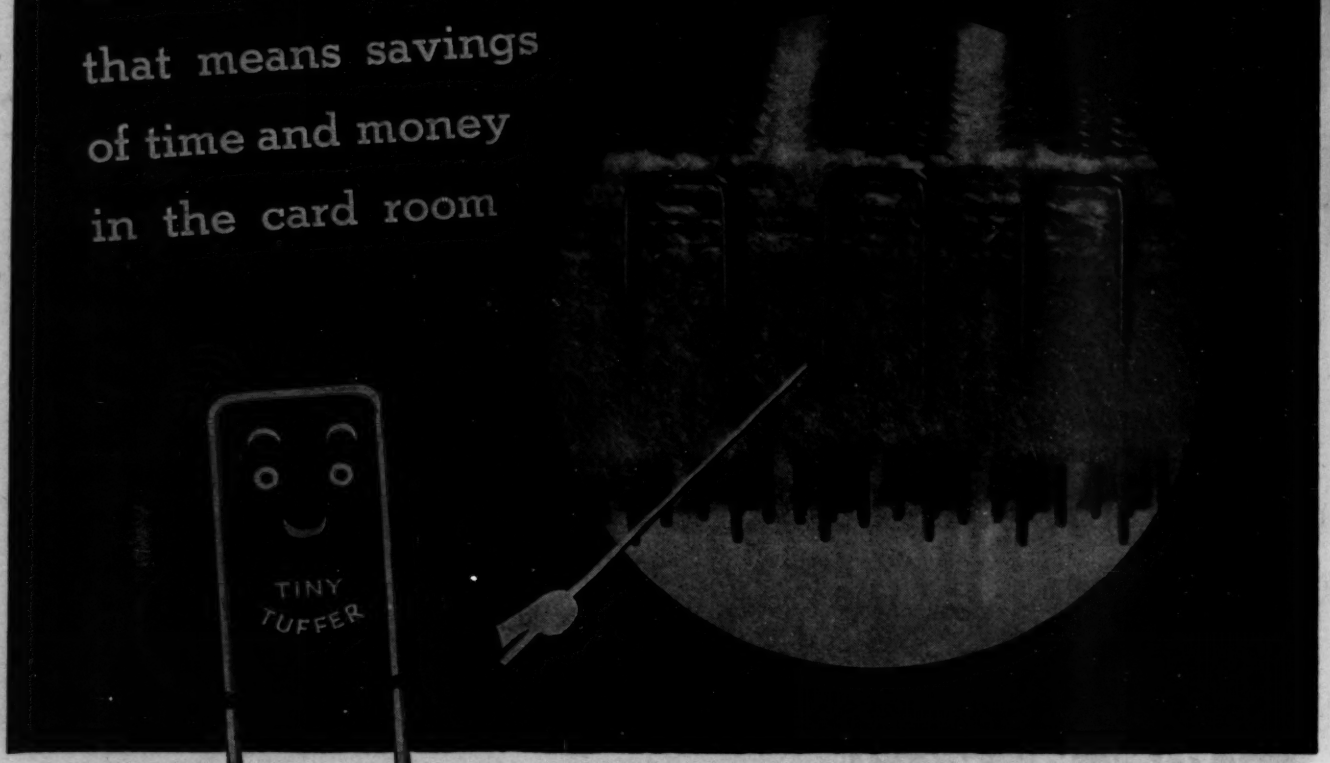
GAYLORD CONTAINER CORPORATION, General Offices: SAINT LOUIS

CORRUGATED AND SOLID FIBRE BOXES
FOLDING CARTONS... KRAFT GROCERY BAGS AND SACKS... KRAFT PAPER AND SPECIALTIES

New York • Chicago • San Francisco • Atlanta • New Orleans • Jersey City • Seattle • Indianapolis
Houston • Los Angeles • Oakland • Minneapolis • Dallas • Jacksonville • Columbus • Tampa
Fort Worth • Detroit • Cincinnati • Des Moines • Oklahoma City • Portland • Greenville
San Antonio • Memphis • Kansas City • Milwaukee • Bogalusa • Weslaco • Greensboro

It's "TUFFERIZED"

that means savings
of time and money
in the card room



The Tufferizing process has made us a family with flat, square crowns. Our sides are parallel and even in length. Our points are cut clean and sharp without wire burrs.

Being accurately cut and formed in the first place, we are not robbed of temper by excessive grinding to get us in shape to go on your cards. Our flat, square crowns nestle snugly between the cylinder and foundation so you can draw us up smoothly and evenly. Our sides remain parallel and our points stay in position at all times.

This means easier stripping, less grinding, longer life, better carding. You can't do better than to *standardize on Tuffer products.*

TUFFER

TUFFER PRODUCTS

Card Clothing for Woolen, Worsted, Cotton, Asbestos and Silk Cards • Napper Clothing, Brush Clothing, Strickles, Emery Fillets. Top Flats Recovered and extra sets loaned at all plants. Lickerins and Garnet Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plant • Midgley Patented, and Howard's Special Hand Stripping Cards • Inserted Eye & Regular Wire Heddles

HOWARD BROS. MFG. CO.

WORCESTER, MASSACHUSETTS

Southern Plants: Atlanta, Ga. Gastonia, N. C. Branch Offices: Philadelphia, Pa. Canadian Agents: Colwool Accessories, Ltd. Toronto 2

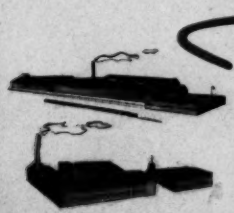
A 4 in 1 COLORED YARN SERVICE

UNLOADING A FRANKLIN PROCESS PACKAGE DYEING MACHINE

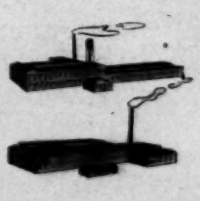
Franklin Process Colored Yarns are supplied by four plants. Yet these plants work as one; — first because they use the same formulas for all standard shades and the same process; second because all of them are available to fill your order. No matter which plant takes your order, it will be filled by that plant which can serve you best. This 4 in 1 service has many advantages as follows:—

1. **All your eggs are NOT in one basket; yet the quality of the product is the same no matter which plant processes it.**
2. **You benefit from both special and general experience: — special because each of our plants specializes to a considerable extent in serving one or more branches of the textile industry; general because the experience of one plant becomes the experience of all four through our "shuttle system", — exchange of information.**
3. **We can supply yarn as well as dyeing, thus saving you time and trouble and concentrating responsibility.**
4. **We dye by the original Franklin Process, which has revolutionized yarn dyeing.**
5. **We offer you not only the largest package dyeing capacity in the world, but also the greatest variety of machine sizes. Thus, we can handle both large and small orders equally well.**

If you make fabrics requiring cotton, worsted, spun rayon, or blended colored yarns, let our 4 in 1 service save you time, trouble and money.



Franklin Process



LARGEST PACKAGE DYERS IN THE WORLD

Providence • Philadelphia • Greenville • Chattanooga • New York Representative, 40 Worth Street • Chicago Representative, 100 West Monroe Street.

Lambeth Products
Herringbone weave spinning tape
Basket weave spinning tape
Basket weave twister tape
Double loop hook bands for cards, twisters, spoolers, etc. (all lengths and diameters)
Mule ropes (dressed or undressed) all sizes and diameters
Braided spindle banding for mules, etc.
Basket weave spooler tape
"BALTRITE" CANVAS LUG STRAP

Quality Before Quantity

It is significant that, although this company is more than 50 years old, it still makes only four different types of mill accessories,—mule rope, banding, spinning tape and canvas lug straps. We are interested in quality before quantity; we like to make one thing with the best possible materials and in the best possible way, before we undertake to make another. This objective is attainable only through years of experience.

Our first product was rope, then banding, next spinning tape and last of all canvas lug straps. We will add other items only when we have temporarily exhausted the possibilities in improving an already excellent lug strap.

Why not sample Lambeth Quality NOW?

LAMBETH ROPE CORPORATION

New Bedford, Mass., Southern Office, Johnston Bldg., Charlotte, N. C.
Mfrs. of Spinning Tape, Mule Rope and Banding. Also Sales Agents for Lambeth Products Corp., Antrim, N. H., Makers of Canvas Lug Straps

ARMOUR SUGGESTS

Ways to pick soap for a specific wet-finishing need!

1. **Fulling of Worsteds and Woolens.** Because of the increasing use of shoddy wools, it is best to choose a low-titered soap. Armour's *Certified* is recommended because of its quick penetration and rinsability. *Certified* is a vegetable fatty acid base soap of medium low titer, available in flakes or solid form.

2. **Cotton and Rayon Cloth Scouring.** When scouring follows the bleaching and rinse, it is usually done at about 180°-190° F. And this calls for a good high titer soap such as Armour's *Flint*. Available in either chip or powder form, *Flint* is guaranteed to give top performance at high temperatures. For *Flint's* titer of 41°-42° C. is proved... before you buy... in Armour's pilot plant.

3. **Raw Wool Scouring.** An economical, low-titer soap is best for raw wool scouring because the temperature of the multiple scouring bowls is usually kept around 115° F. Armour's *Re-Nu* is an excellent soap for this process because it rinses quickly and thoroughly in warm water. *Re-Nu* is a thrifty potash soap in jelly form.

There's an Armour Soap for Every Wet-Finishing Need!

You can select from many Armour textile soaps . . . each built to satisfy completely a particular wet-finishing need. And you can depend upon top performance from *any* Armour soap . . . for they're all made from carefully-selected raw materials and are rigidly controlled during manufacture.

If your order is delayed . . . we know you'll understand that it is not always possible to produce *all* the soap that's needed *all* the time . . . under wartime conditions.

Armour and Company

Industrial Soap Division

1355 WEST 31ST STREET • CHICAGO 9, ILLINOIS

Easy to see
where he got the name.
Barefoot from June to Labor Day
— no baths, no soap in between
except in the swimming hole.
Ragged, "devil may care," happy,
he was always the most popular
kid in the neighborhood,
the ringleader in all the pranks
of school and sport.
Long before Pearl Harbor,
"Soapy" lied about his age,
got into the Marines.
He's a gentleman
and a "top kick" now
with a string of campaign ribbons
as long as your arm.
When malaria sent him home
the cry of "Hi, Soapy"
went with every slap
on the back.

Like "Soapy," Kaumagraph Identification Products were called to the colors long before Pearl Harbor. They, too, have lived up to what was expected of them in all arms of the service. But in spite of overtaxed facilities, Kaumagraph Dry Transfers, Prestomarks, Seals, Labels are still available. They give safe, certain, attractive, economical identification, decoration, information on any surface — textiles, leather, rubber and all sorts of synthetics.

Get your personality, and that of your products over just as "Soapy" did — honorable in spite of a funny name. Kaumagraph Identification will help you get the call over the counter.

PRESTOMARKS • For economical application these distinctive, beautifully lithographed cloth labels have the call. Just the touch of a hot iron makes them stick to fabrics for all time.

Identification Headquarters since 1902

KAUMAGRAPH

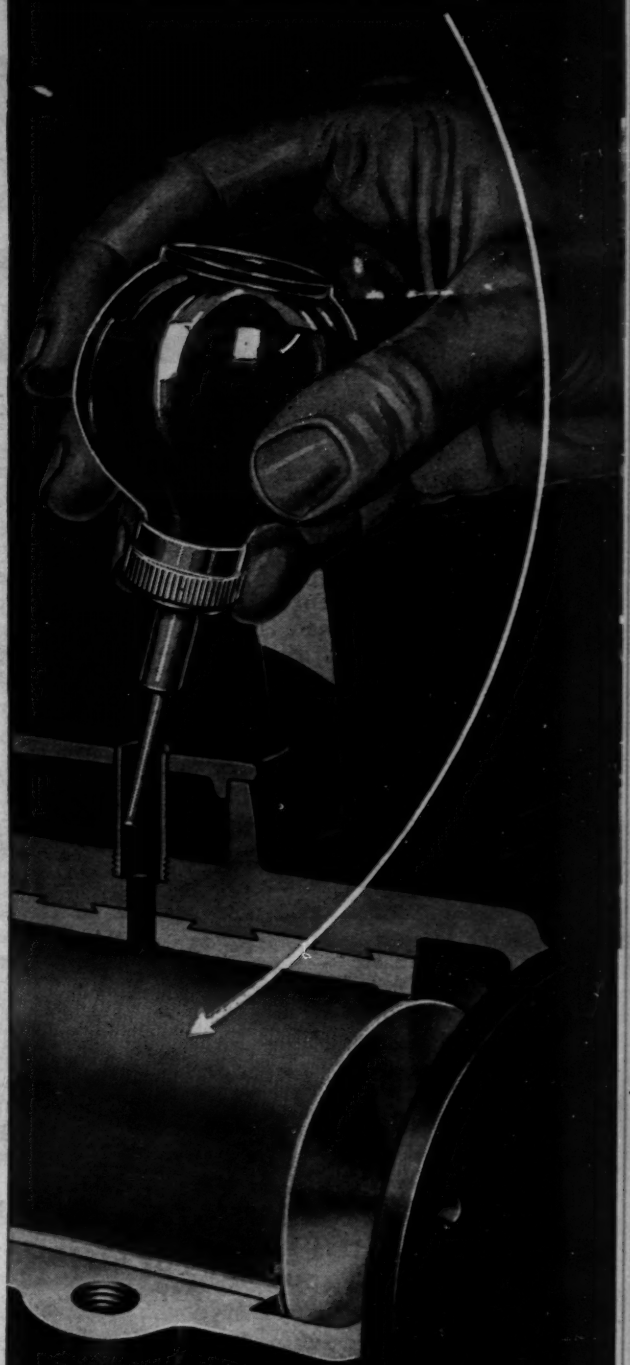
KAUMAGRAPH COMPANY • WILMINGTON 99, DELAWARE • EMPIRE STATE BUILDING, NEW YORK 1, N. Y. • REPRESENTATIVES IN PRINCIPAL TEXTILE CENTERS OF THE WORLD.

HOW TO SOLVE OPERATING PROBLEMS WITH *Correct Lubrication*

Big Power Savings

START HERE

EVER COUNT THE NUMBER OF BEARINGS IN YOUR MILL?



ON top rolls...on drawing frames... twister rings, looms, cards, and weaving machinery!

Almost everywhere you look in your textile plant, there are bearings of some kind. And every one of these bearings is using oil to reduce friction and power loss and prevent destructive wear.

Add them all together and you can't help but appreciate the total savings involved in using the right all-purpose oil.

Through long experience serving textile mills, Socony-Vacuum offers Gargoyle Vactra Oils as the answer to this multiple-bearing problem. These Vactra Oils possess a strong attraction for metals and so provide extremely persistent films for all-loss systems. They resist wiping and rupture to keep friction, power loss, and wear down to the minimum.

Get in touch with your Socony-Vacuum man today and get these Vactra Oils in your mill.

•

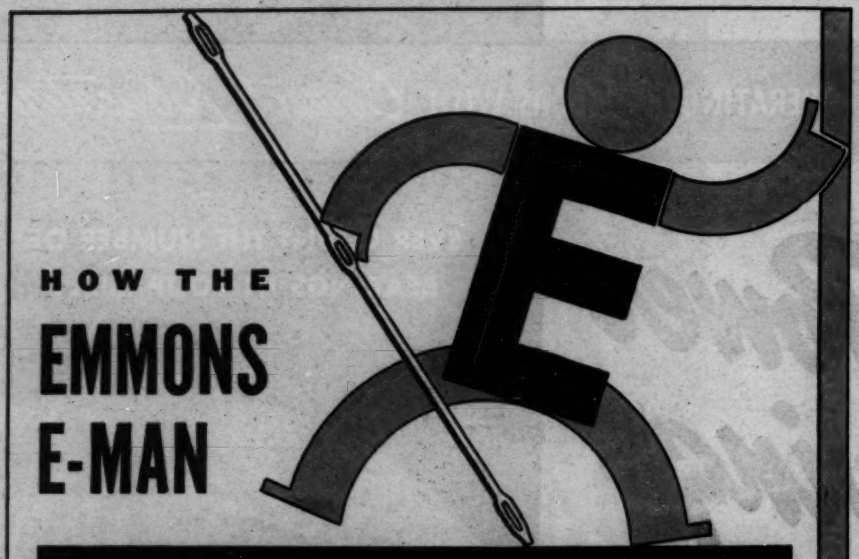
Socony-Vacuum Oil Co., Inc.

Standard Oil of New York Division, White Star Division, Lubrite Division, Chicago Division, White Eagle Division, Wadhams Division, Magnolia Petroleum Co., General Petroleum Corp. of Calif.

GARGOYLE Lubricants

SOCONY-VACUUM

ONE OF A SERIES OF SUGGESTIONS TO AID PRODUCTION



HOW THE

EMMONS E-MAN

IMPROVES YOUR WEAVING

Meet the man who is the composite of all the persons who contribute to Emmons quality and service.

He is the man responsible for the extra smoothness of Emmons heddles, the special streamlined surface of the Emmons heddle eye, preventing yarn chafing and warp breaks, and the rust-resistant coat that keeps it on the job longer.

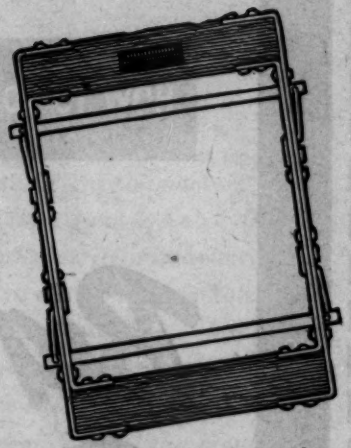
He is the Emmons inspector who puts the "Seal of Certainty" on every shipment of Emmons heddles to you.

And the E-man is also the Emmons representative in your territory, ready to give you today, the prompt and helpful service of an experienced millman. Call on him—and write "Emmons" on your next order for the heddles that save weaving troubles, lower weaving costs.

BE CERTAIN...BUY CERTIFIED

EMMONS LOOM HARNESS COMPANY

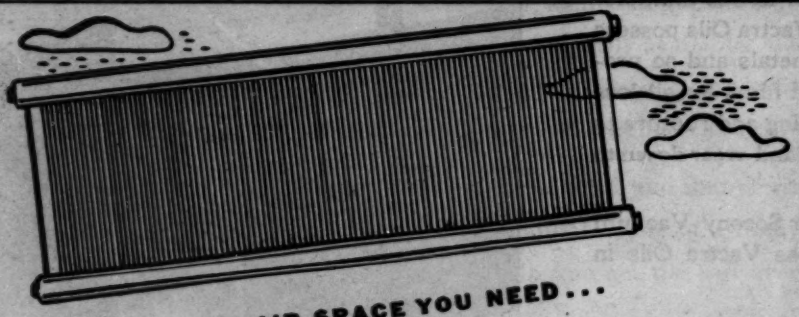
LAWRENCE, MASS. • CHARLOTTE, NORTH CAROLINA



WE HAVE CONSISTENTLY IMPROVED THIS HEDDLE FRAME

Heddle frame performance is the result of a combination of details. In the improved Emmons frame, for instance, an extra number of rolled rivets are placed exactly where strength is needed most. Then, it's also a matter of hand-picked, knotless lumber, with two protective coats, plus a special rust-resistant finish for metal parts. The results can be *seen* in less vibration, a sturdy life, without buckling or binding, no matter how fast you will be apt to run them.

Look for this seal. If it's there on your next shipment of loom harness equipment, it means an E-man Inspector checked it with care before it left our plant.



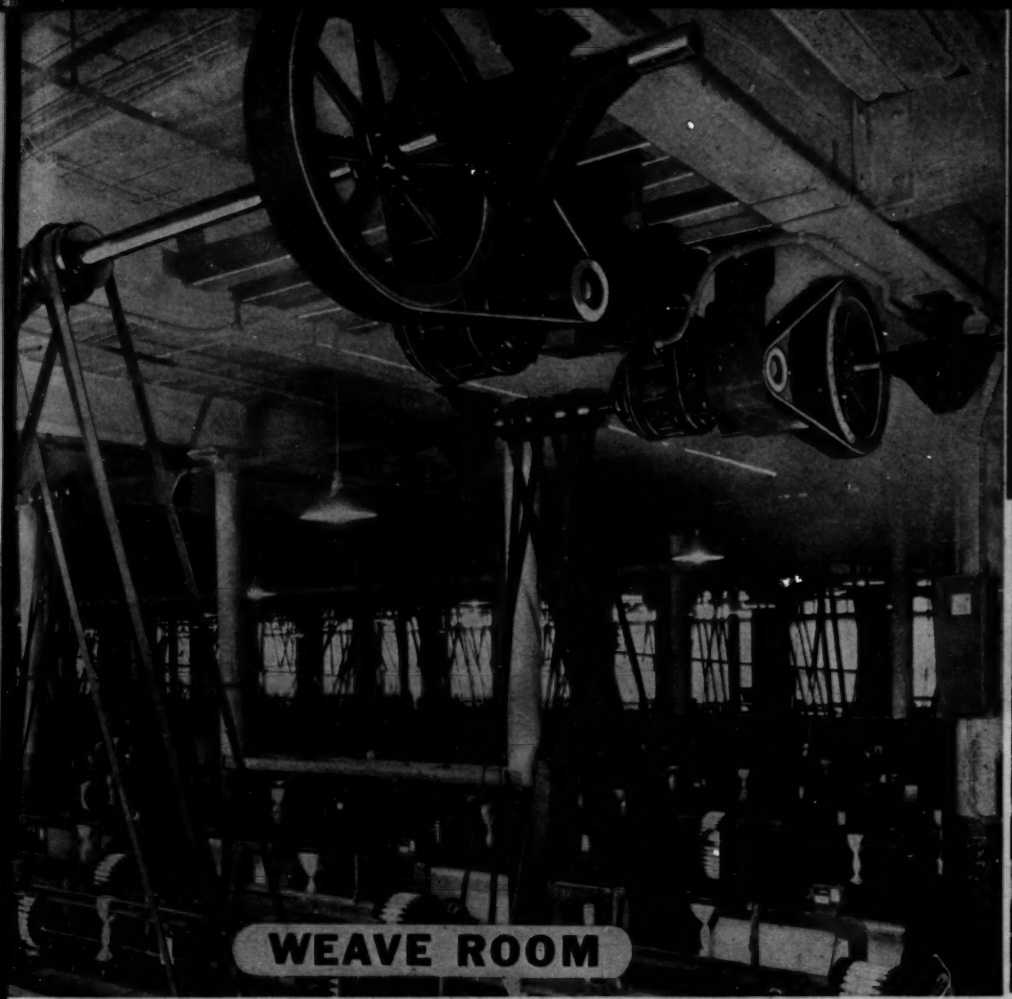
ALL THE AIR SPACE YOU NEED...
WITHOUT LOSS OF RIGIDITY

Free warp movement is essential, especially when looms are in continuous operation, but it naturally must be obtained without loss of rigidity. Emmons reeds, air-spaced up to 70% if desired, are made under rules of *controlled* manufacture, insuring accurate spacing and smooth dents. The proof? A test sample—your next replacement order.

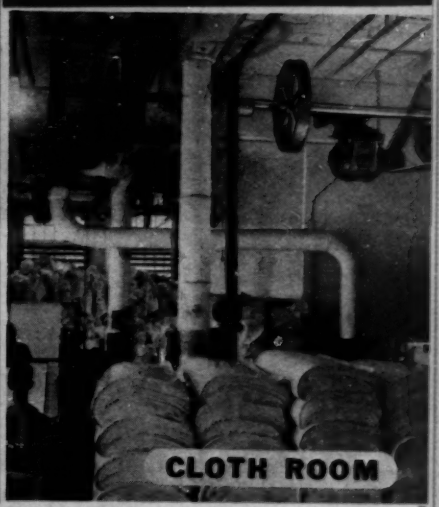
EMMONS

Lawrence, Mass., and Charlotte, N. C. Products stocked in Charlotte and Lawrence. Reeds manufactured at both plants. Branch offices: Clifton Watson, Manager of Southern Sales, George Field, Plant Manager, Box 2036, Charlotte (Tel. Charlotte 3-7503) . . . Arthur Harris, Box 1982, Atlanta (Tel. Main 2543) . . . Alvin Braley, Box 236, Itasca, Tex. (Tel. 170) . . . W. S. Taylor, 52 Vanderbilt Ave., New York (Tel. Lexington 2-6060) . . . Albert R. Breen, 80 East Jackson Blvd., Chicago (Tel. Harrison 7140).

ARGENTINA, Buenos Aires: Roberto Zander, 345 Juan Juares. BRAZIL, Rio de Janiero: A. Polak, Caixa Postal 362. CHILE, Santiago: W. L. Robinson, Casilla 2025. COLOMBIA, Medellin: C. E. Halaby & Co., P. O. Box 139. CUBA, Havana: J. N. Perez-Pena, Box 161'. MEXICO, Mexico City, D. F.: Leo Lenk, Apartado 533. PERU, Lima: Constantino N. Sabal, P. O. Box 2288. VENEZUELA, Caracas: N. Marvez, Apartado 391.



HAVE YOU TRIED THESE BETTER LINESHAFT DRIVES ?



ROCKWOOD *automatic belt tightening* MOTOR BASES

A TIMELY SUGGESTION

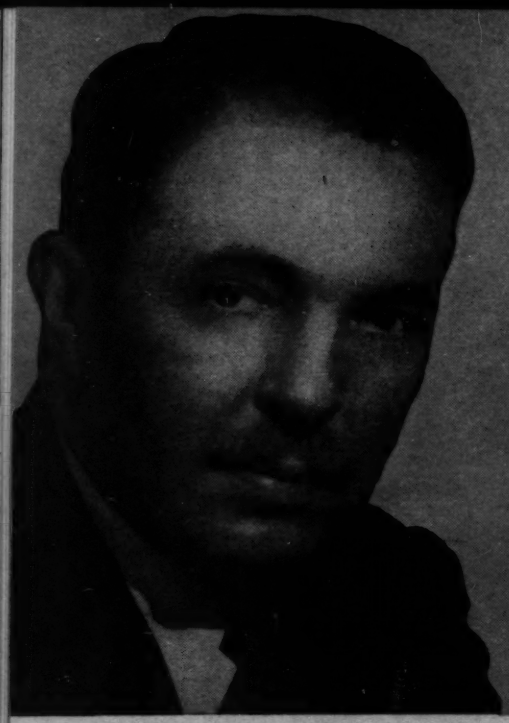
Look over your plant and see if you have any ceiling mounted motors driving lineshafts.

If any of these are mounted on fixed centers with old fashioned belt take up install Rockwood pivoted motor bases. This will improve the performance of ALL the machines each shaft drives.

HAVE YOU TRIED THESE BETTER LINESHAFT DRIVES? Rockwood ceiling type drive Bases are an engineering ideal for V-belt or flat belt drives. One man on a ladder can provide what little maintenance the motor or drive will ever need. Belt alignment is easy—the installation can be made quickly. Then, forever after, your ceiling mounted motor drives will be the least of your troubles. Belt replacement itself will be cut approximately in half.

Machines driven from Rockwood Drive lineshafts operate at more uniform speeds—produce more—do better work.

ROCKWOOD MANUFACTURING COMPANY, Indianapolis, Ind.



Creative Chemistry at its best . . .

"To describe the task of the chemist who creates new products out of neglected raw materials, Dr. Edwin E. Slossen coined the name Creative Chemistry. No more shining example of Creative Chemistry at its highest and best can be found than the proud record of accomplishment of Hercules Powder Company in the field of terpene and rosin chemistry."

DAVID DIETZ, *Science Editor of the Scripps-Howard Newspapers, Author, Pulitzer Prize Winner*

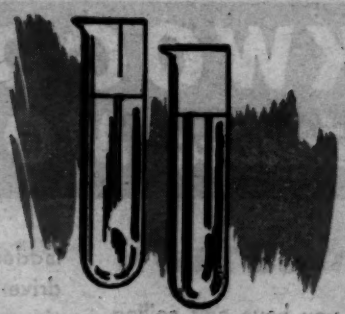
A TWENTY-FIVE YEAR TASK

"Twenty-five years ago Hercules launched its researches into wood rosin, wood turpentine, and pine oil—materials that the industrial world had neglected and ignored. Over the years, Hercules built an outstanding research and technical staff, one of the world's important laboratories, and maintained the courage to risk millions of dollars in development work and new plant facilities."

WHAT HERCULES HAS ACHIEVED

. . . *with Rosin*

From unstable, dark, wood rosin, Hercules chemists created superior pale rosins; they then stabilized these rosins by both hydrogenation and polymerization; they developed a large number of other purified, tailor-made rosins and rosin esters for hundreds of specialized purposes.



. . . *with Turpentine*

From crude wood turpentine Hercules chemists uncovered a whole new series of useful terpene chemicals. They achieved the first synthetic production of para-cymene. They created alpha pinene for the synthesis of camphor, and introduced many new bases for alkyds and terpene alcohols.

. . . *from Pine Oil*

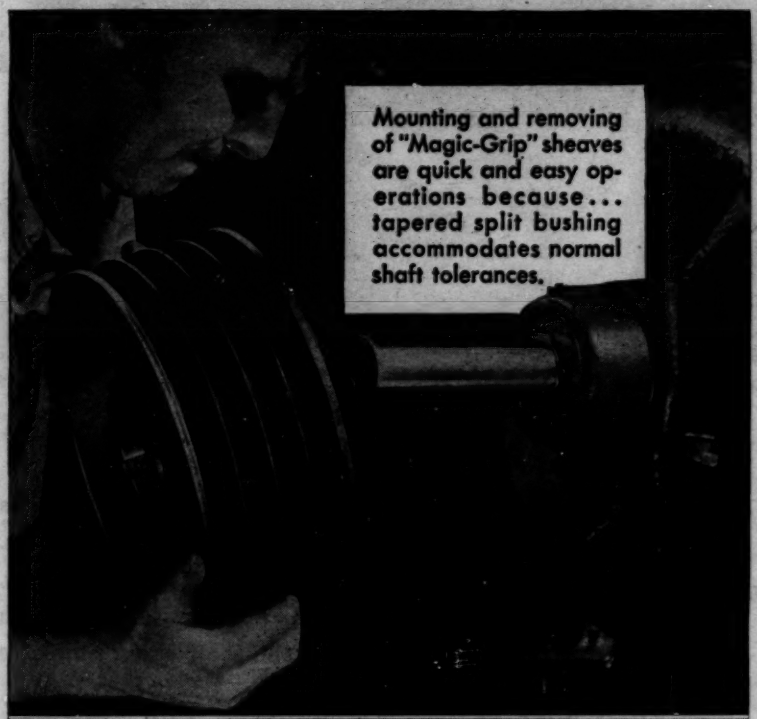
Hercules chemists began their studies pine oil when few industrial uses exist for it. From this long and costly resear have come special derivatives for n and better flotation reagents, disinf tants, insecticides, scouring agents, det gent assistants, and wetting agents.

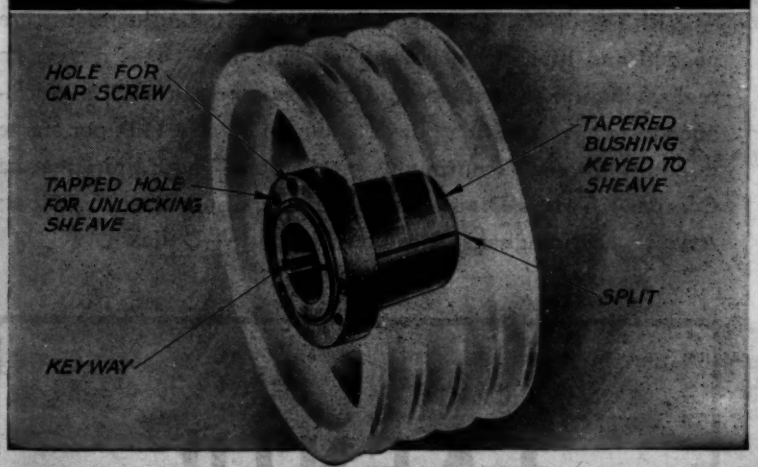
HERCULES TERPENE AND ROSIN CHEMICALS

N1-40

HERCULES POWDER COMPANY, 903 Market Street, Wilmington 99, Delaware

It saves you Man-hours and Money because it "Grips like Magic!"


Mounting and removing of "Magic-Grip" sheaves are quick and easy operations because... tapered split bushing accommodates normal shaft tolerances.



Allis-Chalmers' new "Magic-Grip" Sheave locks to shaft in one easy operation, mounts faster than any other sheave on the market. It helps conserve your motors and machines, too!

THE sheave that "grips like magic" is kind to both shafts and bearings. Its positive clamp fit allows sheave to be changed as often as desired without injury to shaft or itself. And the new design of "Magic-Grip" permits sheave to be mounted closer to motor... increasing bearing life by reducing shaft overhang.

You get smoother running performance, too, because the new "Magic-Grip" sheave is perfectly centered when installed on shaft.

Allis-Chalmers "Magic-Grip" is assembled and mounted as a unit, assuring true alignment. Its split-bushing feature allows for over- or undersized shafts... making it possible for *anyone* to mount or demount sheave easily.

And you get all these advantages at *no increase in price.* Now, more than ever, it pays to make Allis-Chalmers your "V-Belt Drive Headquarters."

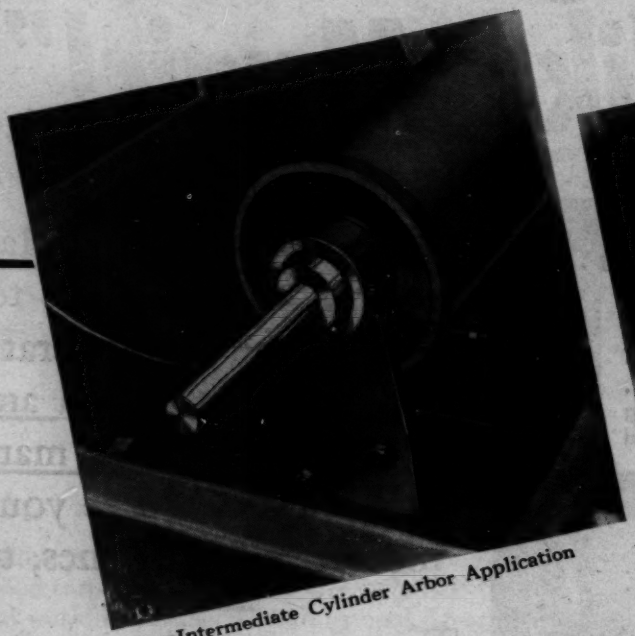
"Magic-Grip" sheaves are stocked in a complete line. For full data, ask our district office or dealer for B6310. Or write ALLIS-CHALMERS, MILWAUKEE 1, WIS.

A 1683

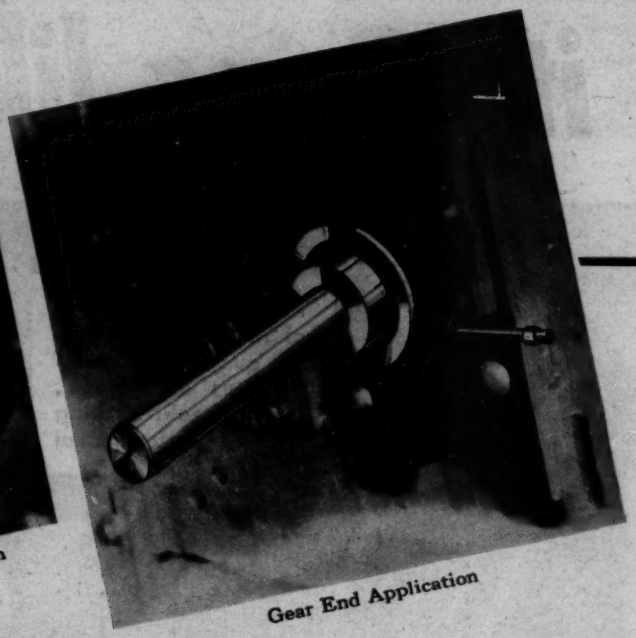
Allis-Chalmers Texrope

"MAGIC-GRIP" SHEAVES

With Fafnirs, changeover to ball bearings is "SIMPLE AS DOFFING A FRAME"!



Intermediate Cylinder Arbor Application

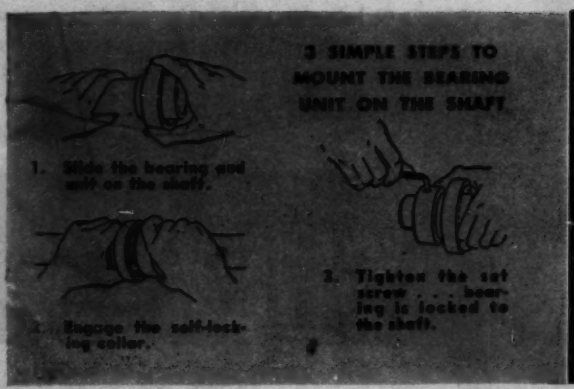


Gear End Application

Intermediate Cylinder Arbor Unit

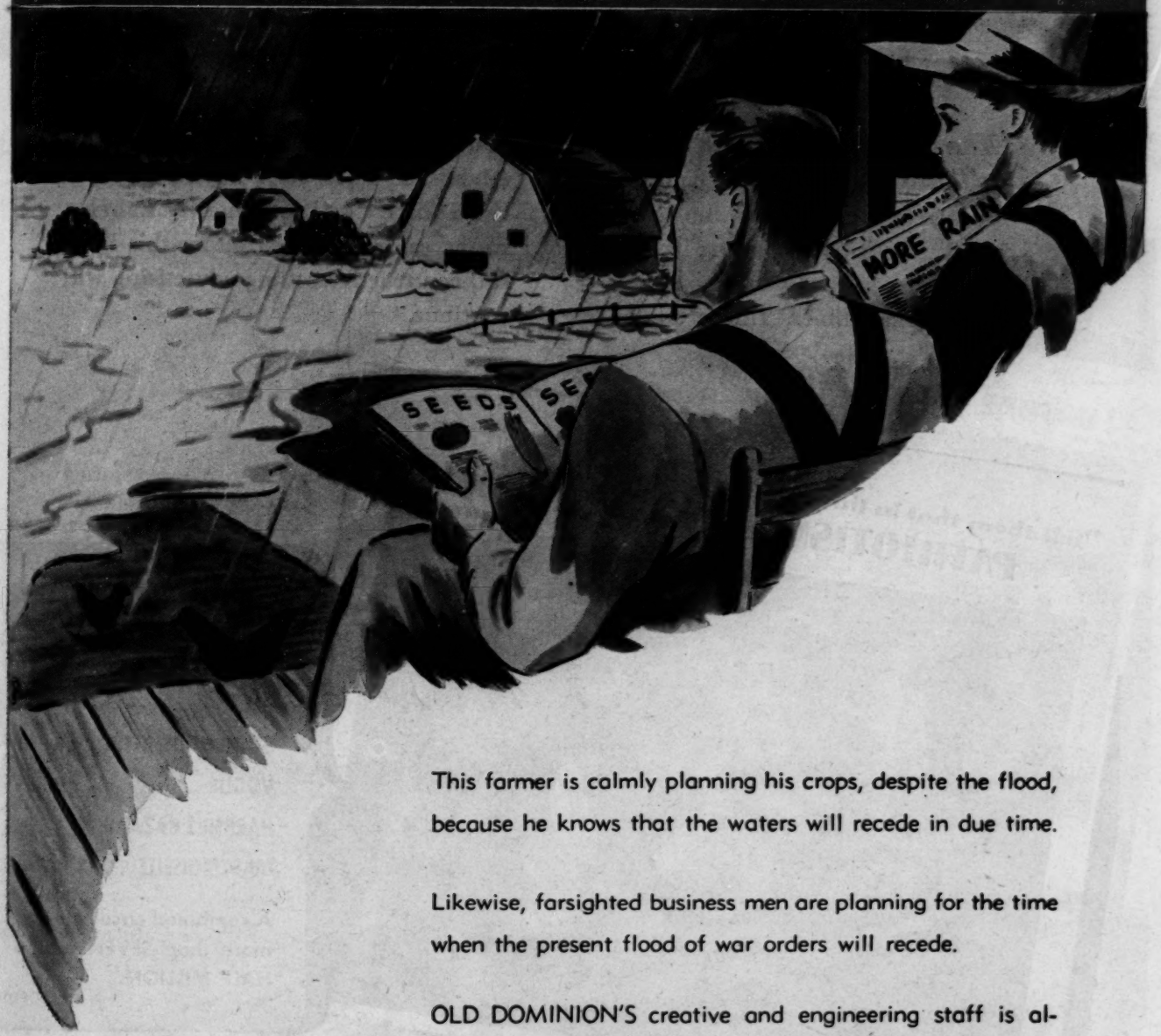
99% of applications of Fafnir Ball Bearing units to cylinders of spinning and twister frames require no machine alterations. They are accommodated on the same cross girts and bolt holes, and the operation of slipping the wide inner ring bearing, with its exclusive Self-Locking Collar, on the shaft is as "simple as doffing a frame"!

With Fafnir Ball Bearing units, no repeated adjustments are needed and lubrication is required only four times a year – a real saving in maintenance and lubrication costs. Mill performance tests have shown a power saving of ¾ to 1 H.P. per frame in addition to safe, continuous production. The Fafnir Bearing Company, Textile Division, New Britain, Conn. Branch Offices: Atlanta – Birmingham – Boston – Charlotte – Dallas.


3 SIMPLE STEPS TO MOUNT THE BEARING UNIT ON THE SHAFT
1. Slide the bearing and unit on the shaft.
2. Engage the self-locking collar.
3. Tighten the set screw . . . bearing is locked to the shaft.

FAFNIR
BALL BEARINGS

Planning TOMORROW'S WORK



This farmer is calmly planning his crops, despite the flood, because he knows that the waters will recede in due time.

Likewise, farsighted business men are planning for the time when the present flood of war orders will recede.

OLD DOMINION'S creative and engineering staff is already working on new and exciting packages for some of its farsighted clients. OLD DOMINION is ready – now – to redesign YOUR packages to meet the stiff competition of tomorrow.

Call On

OLD DOMINION BOX COMPANY

CHARLOTTE, NORTH CAROLINA

PLANTS IN NINE SOUTHERN CITIES

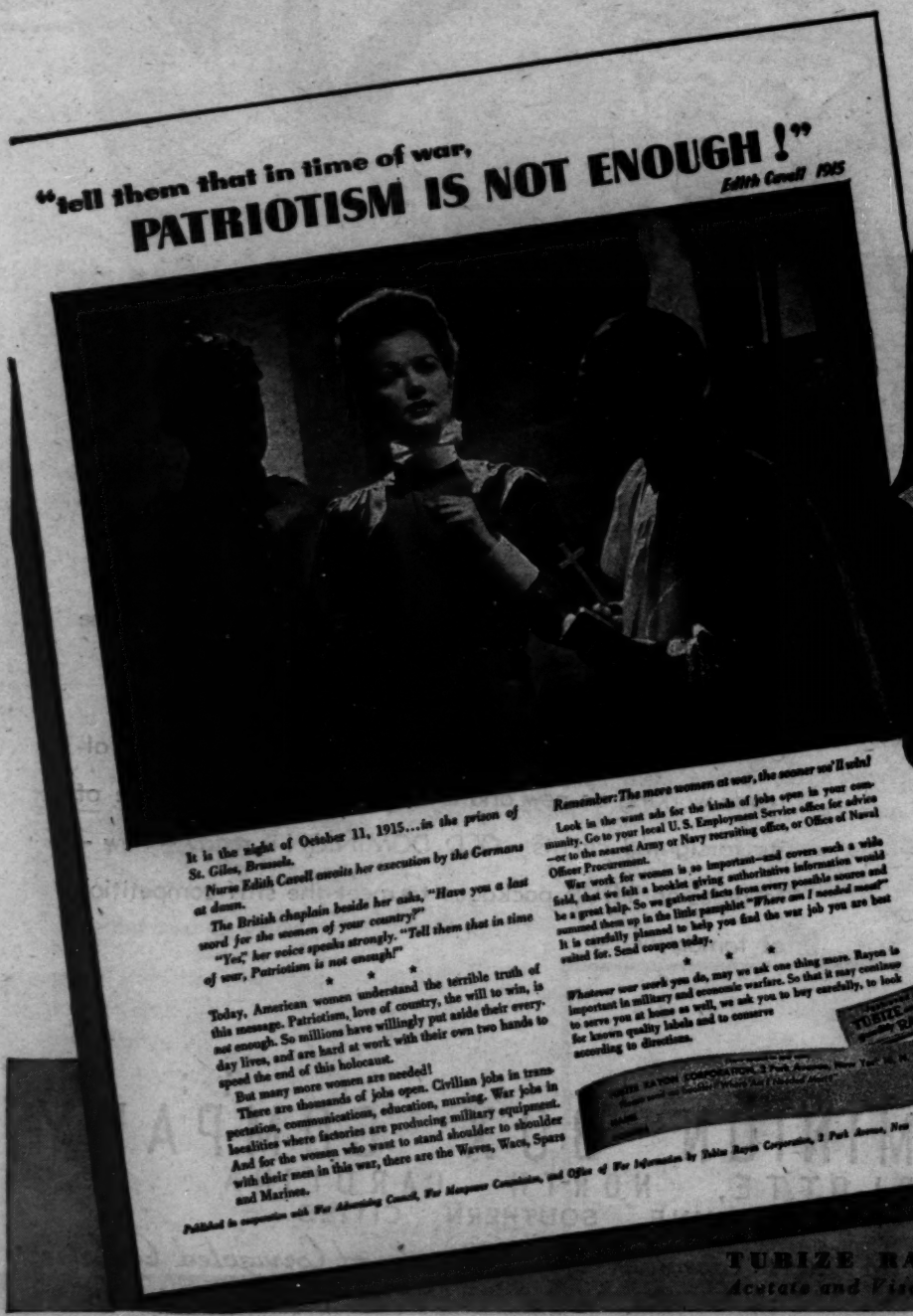
Folding Cartons • Set-Up Boxes • Convolute • Spiral Wound and Corrugated Containers

"THE SOUTHERN BOXMAKER WITH A NATIONAL REPUTATION"

Advertising to

"The more women at war, the sooner we'll win" . . . that is Uncle Sam's official message to every woman who can take a job. Tubize is again putting its national advertising behind that message.

In normal times, Tubize advertising built up an appreciation of Rayon, and established a respected buying guide in the Tubize Certified Quality Label... in the eagerly awaited future this helpful, constructive selling advertising will continue.


"Tell them that in time of war,
PATRIOTISM IS NOT ENOUGH!"
Edith Cavell 1915
It is the night of October 11, 1915...in the prison of St. Gilles, Brussels.
Nurse Edith Cavell awaits her execution by the Germans at dawn.
The British chaplain beside her asks, "Have you a last word for the women of your country?"
"Yes," her voice speaks strongly. "Tell them that in time of war, Patriotism is not enough!"
* * *
Today, American women understand the terrible truth of this message. Patriotism, love of country, the will to win, is not enough. So millions have willingly put aside their everyday lives, and are hard at work with their own two hands to speed the end of this holocaust.
But many more women are needed!
There are thousands of jobs open. Civilian jobs in transportation, communications, education, nursing. War jobs in localities where factories are producing military equipment. And for the women who want to stand shoulder to shoulder with their men in this war, there are the Waves, Wacs, Spars and Marines.
Remember: The more women at war, the sooner we'll win!
Look in the want ads for the kinds of jobs open in your community. Go to your local U. S. Employment Service office for advice —or to the nearest Army or Navy recruiting office, or Office of Naval Officer Procurement.
War work for women is so important—and covers such a wide field, that we felt a booklet giving authoritative information would be a great help. So we gathered facts from every possible source and summed them up in the little pamphlet "Where am I needed most?" It is carefully planned to help you find the war job you are best suited for. Send coupon today.
* * *
Whatever war work you do, may we ask one thing more. Rayon is important in military and economic warfare. So that it may continue to serve you at home as well, we ask you to buy carefully, to look for known quality labels and to conserve according to directions.
TUBIZE RAYON
Published in cooperation with War Advertising Council, War Manpower Commission, and Office of War Information by Tubize Rayon Corporation, 3 Park Avenue, New York 16, N. Y.

This advertisement will appear in:

LIFE	April 17
GOOD HOUSEKEEPING	April
VOGUE	April 15
HARPER'S BAZAAR	April
MADEMOISELLE	April

A combined circulation of more than SEVEN and a HALF MILLION.

Prepared in cooperation with the War Advertising Council, War Manpower Commission and Office of War Information.

TUBIZE RAYON CORPORATION
Acetate and Viscose Rayon Yarns and Fabrics

help speed Victory

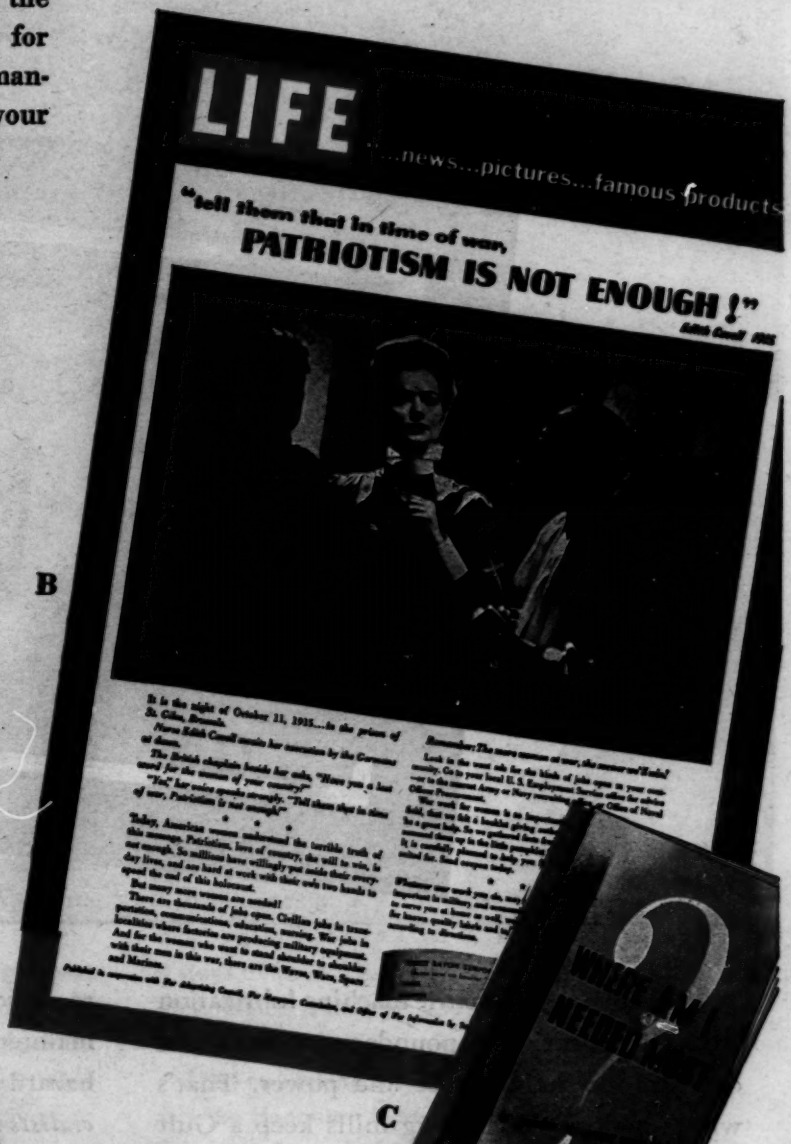
Now there is the war to win, and the greatest service advertising can do for you is to increase and stabilize woman-power, for your mill, your store, your community, your armed forces.

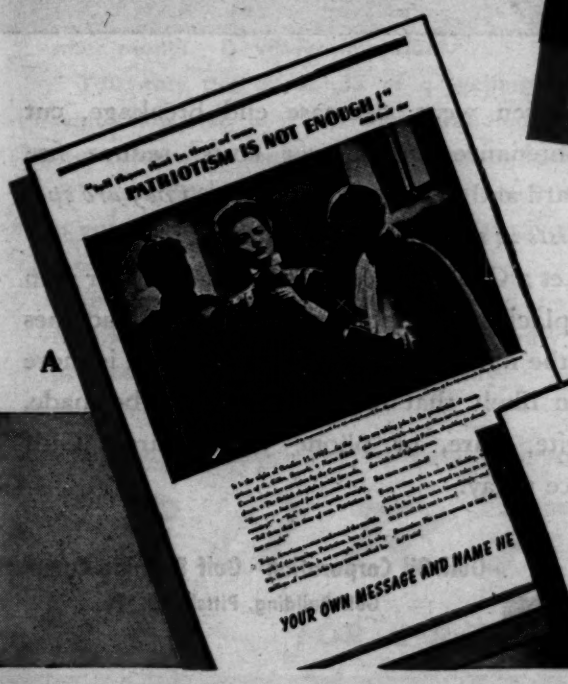
PUT YOUR INFLUENCE behind this "Advertising to Help Speed Victory"—to make it more effective in your own town, your store, your mill. Give localized, personalized extra power to this vital Government message. Use coupon for free material.

A *Advertisement for your local papers...it ties in with the powerful national advertisement. Mat free on request.*

B *As seen in* LIFE, *card and poster to display in store or factory—free on request.*

C *Booklet "Where Am I Needed Most?"...a guide to women...use as envelope enclosure or on counters...How many can you use?*





Paste Coupon on Post Card

TUBIZE RAYON CORPORATION · 2 Park Ave., New York 16, N.Y.

Please send me (check)

☐ Display card and poster

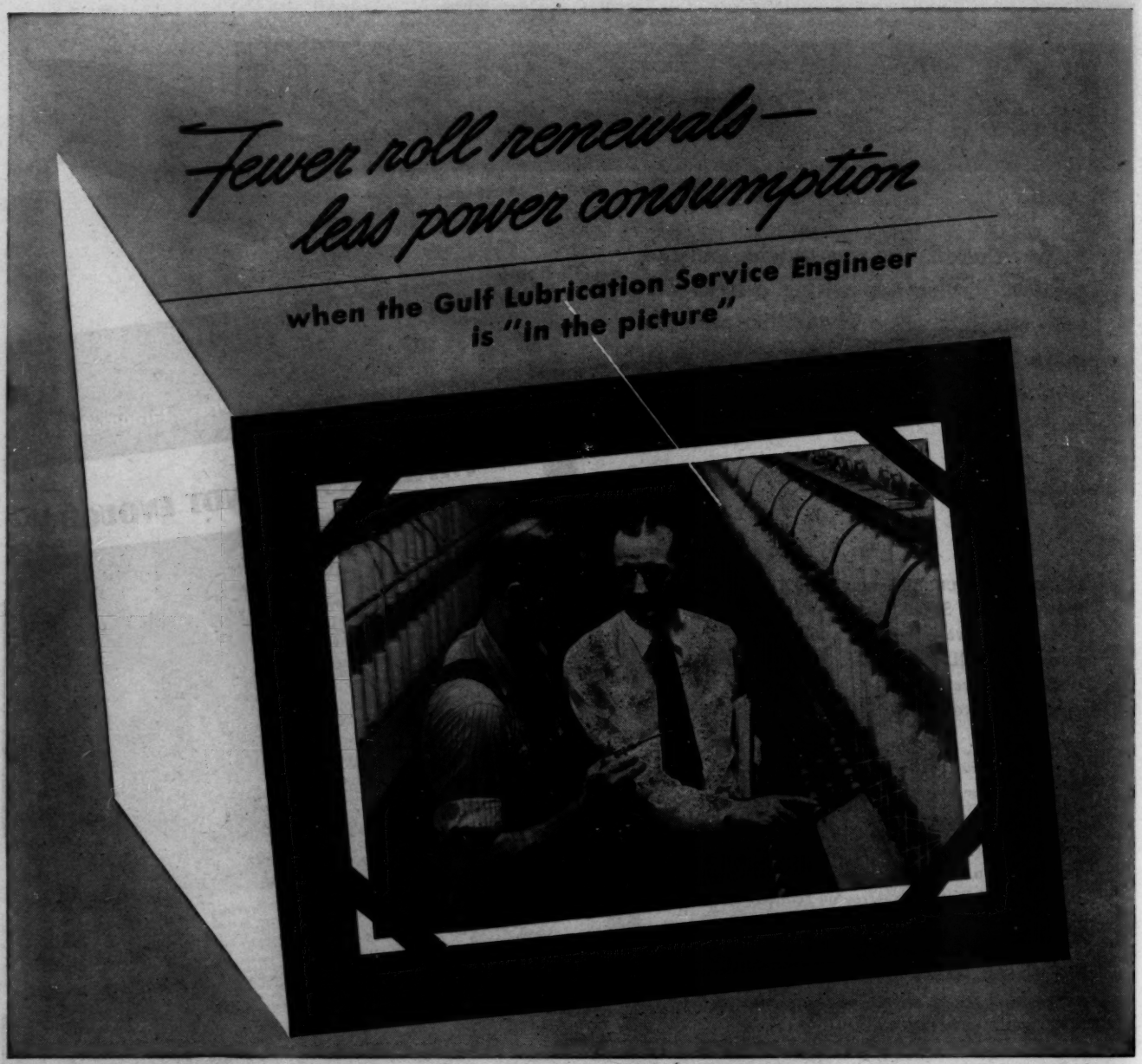
☐ Mat of local newspaper ad

☐ Booklets. Quantity.....

Name.....

Address.....

.....



The effectiveness of textile machine lubrication has a direct bearing on poundage produced and on costs for maintenance and power. That's why a majority of leading mills keep a Gulf Lubrication Service Engineer "in the picture," and follow his helpful advice on their lubrication problems.

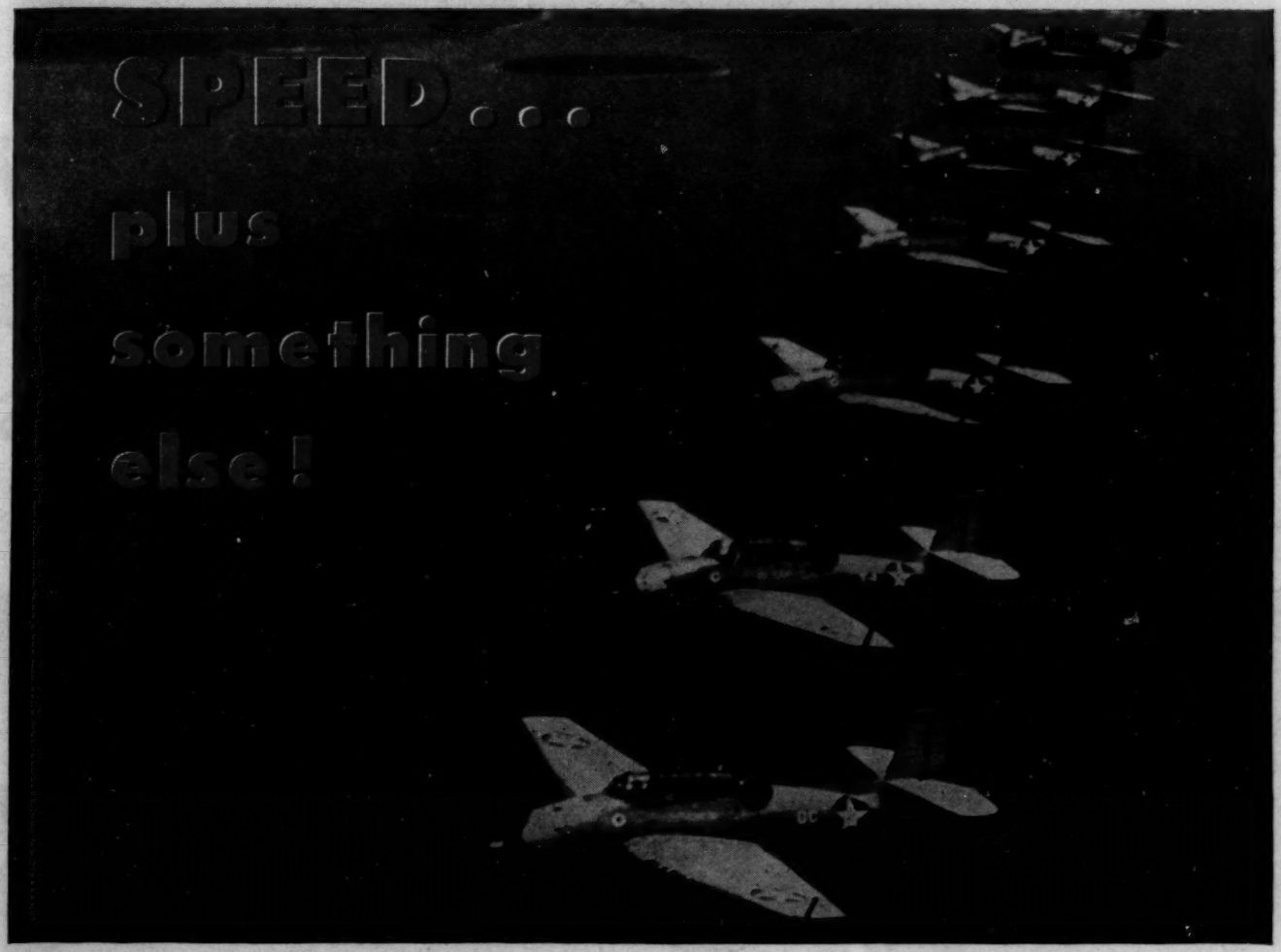
By recommending the proper application of the right oils and greases for every moving part, Gulf Lubrication Service Engineers help to lessen wear, decrease end breakage, cut maintenance and power costs, reduce fire hazard and improve production. *They are specialists in scientific lubrication!*

Let a Gulf Service Engineer assist your men in placing the lubrication of your machines on the most efficient basis possible. It is more than likely that improvements can be made. Write, wire, or phone your nearest Gulf office today.

Back the attack... buy **MORE** *War Bonds!*

GULF INDUSTRIAL LUBRICATION

Gulf Oil Corporation · Gulf Refining Company
Gulf Building, Pittsburgh, Pa.



SCIENCE has made it possible to increase wetting speed in wet processing of textiles, to a degree believed impossible only a few short years ago.

But speed alone is by no means the sole essential. *Uniformity*—drum after drum, month after month—is vitally important.

You may get a sample of a wetting agent which is speedy at a low concentration. But will that speed stay constant for each multiple-drum shipment, each batch the maker produces? What is your assurance of such uniformity, to give you a constantly good money value?

The manufacturer must set up and rigidly maintain controls that will make it virtually impossible to vary in product uniformity.

Houghton has such a control system. Our laboratory will not release a batch until after it has been pronounced O.K. after standard tests have been made under careful supervision.

With a definitely faster wetting speed than most agents, SURFAX W. O. stays sold because it stays uniform. Plant men know they can depend on it. Which is another vital reason for the popularity of this product.

Are you seeking a fast, uniform wetting agent? Ask the Houghton Man or write:

E. F. HOUGHTON & CO.

303 W. Lehigh Avenue, Philadelphia
1301-05 W. Morehead Street, Charlotte

SURFAX W.O.

FOR S-P-E-E-D IN WETTING OUT

RIGHT ON YOUR DESK-TOP..

YOU CAN PROVE WHY SPINNA CALF

WORKS BETTER ON YOUR ROLLS

It's high-friction... eliminating "eyebrows"!

Press down at a slant. That Spinna Calf won't be pushed smoothly . . . friction holds it back, giving way in short jumps only when you apply more pressure. That signifies a superior friction surface (compare it with other materials), carrying waste well onto the clearer — and improving drafting, too!

It holds its shape... no hollowing-out!

Take a Spinna-covered roll that has been running for a while off the frame and place it against a perfectly straight surface, such as a ruler. You won't see light in-between, because Spinna — the more resilient calfskin — holds its shape from end to end . . it always springs back after the traversing of the sliver.

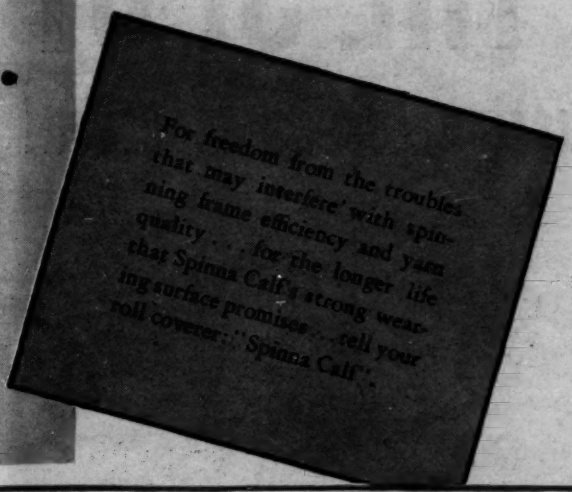
It's triple-resilient... no trouble from hard ends!

Roll a Spinna-covered roll over a length of thread. The desk-top won't give way — the leather has to. But then examine the roll cover. It has sprung immediately back into shape without a trace of a groove. Ordinary hard ends can't harm Spinna! You can depend on Spinna for top-quality work . . . a long time.

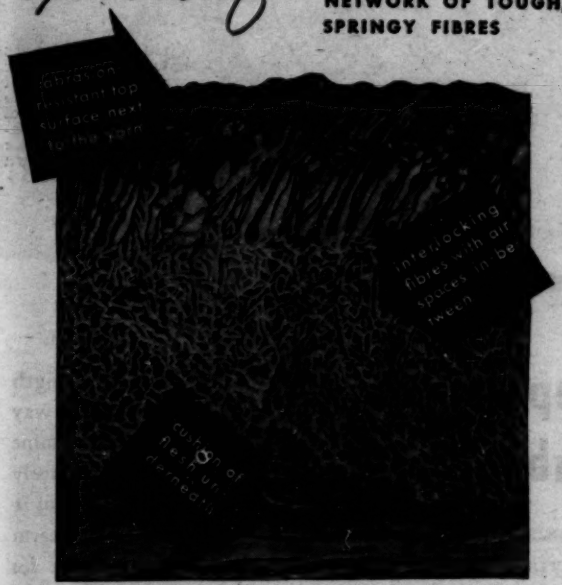
A. C. LAWRENCE LEATHER CO. RELIABLE LEATHERS PEABODY MASS.

Lively **SPINNA CALF** *It's Triple Resilient*

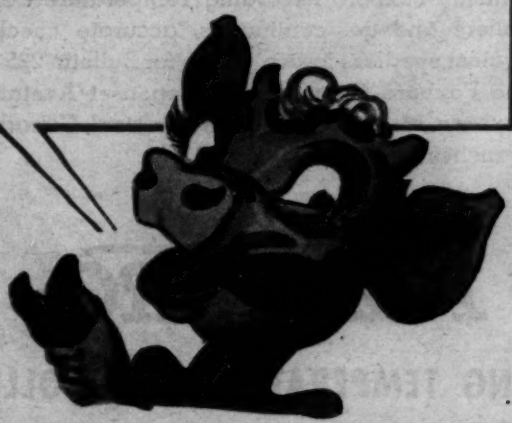
ROLL COVERING

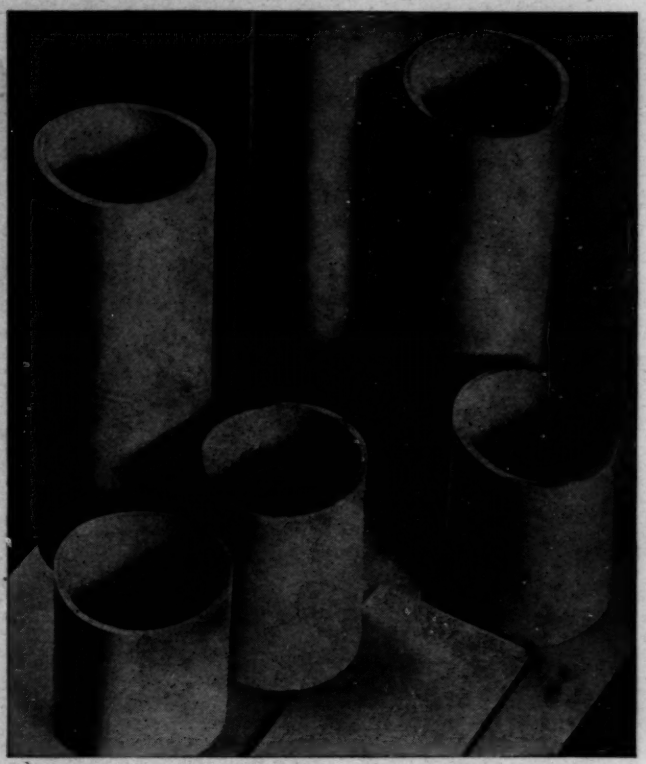

For freedom from the troubles
that may interfere with spin-
ning frame efficiency and yarn
quality . . . for the longer life
that Spinna Calf's strong wear-
ing surface promises . . . tell your
roll coverer: "Spinna Calf".

Spinna Calf.. **AIR CUSHIONS IN A NETWORK OF TOUGH, SPRINGY FIBRES**



"If you want roll covering that is adjustable to all counts . . . can take ordinary hard ends without leaving grooves . . . and stays kind to the yarn for up to 18 months and more in front line positions . . . then Spinna Calf — the most generally-used calfskin — is your best choice."





Leather aprons can't be challenged for CONVENIENCE . . .

Lawrence Chrome has no superior for DRAFTING

One big advantage common to all leather aprons is — they are furnished open-end and can be installed as needed, even in bottom positions, without costly delays. You can maintain uniformity because *all* spindles can be running on the *same* apron material — leather.

Lawrence Chrome adds the important advantage of superior drafting quality. And that's the reason why Lawrence Chrome is being used more on spinning and roving frames than any other type.

Lawrence Chrome has a smooth, firm, high-friction surface that holds the fibres — even the shortest — right in line, for a positive draft. Oily and gummy deposits are absorbed by the leather pores, none being left on the surface to spoil the yarn. And being mineral-tanned, Lawrence Chrome reduces static troubles.

Life is longer, too, because Lawrence Chrome's firmly-knit fibre structure resists abrasion for a long period of time and refuses to "bell out" with pressure of the traversing yarn.

Lawrence Chrome is standard with Whitin Machine Works. And apron manufacturers in important textile centers will tell you it gives superior results. Specify Lawrence Chrome for your next aprons.

LAWRENCE CHROME LEATHERS

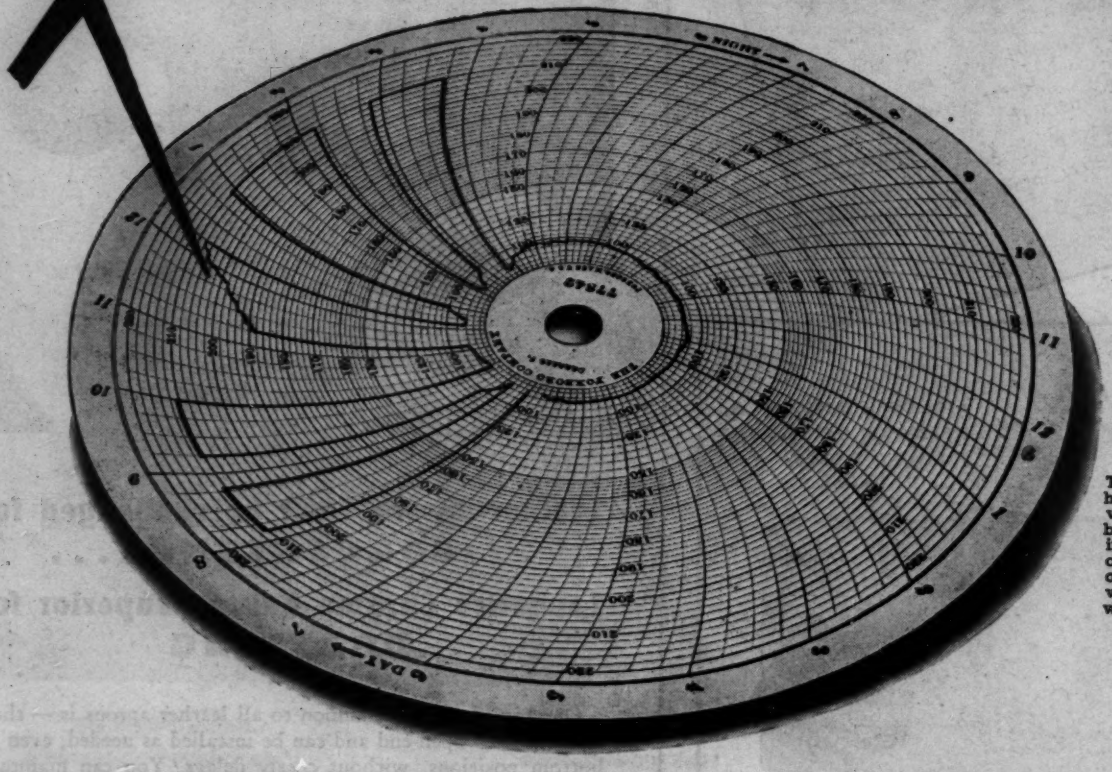
1st Choice for Aprons

A. C. LAWRENCE LEATHER COMPANY

PEABODY, MASS. GREENVILLE, S. C.

X MARKS THE SPOT

where needless production losses occurred!



This chart shows how one batch "went wrong" because of boiler steam failure impossible to control at the process. Without the record, no one would have known why it happened!

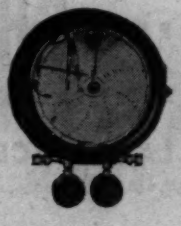
Only Controllers that keep Written Records can give such vital facts about your product!

On any process employing temperature controllers, you'll get important *added protection* by installing controllers that keep written records of the temperature!

Foxboro Recording Temperature Controllers not only hold process temperatures exactly where you want them, but give you continuous graphic records to prove it. Even if external factors, such as steam failure or mechanical troubles, should "let you down", these automatic watchmen instantly mark it on the record... give you immediate opportunity to check the cause and correct it!

Foxboro On-Off Temperature Controllers are the type that has been proved best for over 65% of all control jobs... exactly suited to the characteristics of most processes. Simple, positive-acting, and calibrated in degrees for accurate direct setting.

Install Foxboro Recording Temperature Controllers and get continuous, accurate checks against needless losses. Write for Bulletin 225-2. **The Foxboro Company, 18 Neponset Avenue, Foxboro, Mass., U. S. A.** Also Montreal, Canada. Branches in principal cities.



Foxboro On-Off Temperature Controller—the closest type of control for 65% of all jobs. Other Foxboro Controllers give equally outstanding performance for *special* jobs ... the other 35%!

ARMY E NAVY

FOXBORO

Reg. U. S. Pat. Off.

RECORDING TEMPERATURE CONTROLLERS

There is a size and type **LOUIS ALLIS** *electric motor for every industrial requirement.*

THE LOUIS ALLIS CO., MILWAUKEE 7, WIS.

Your Electric Motor Requirements

The day of trying to use a standard motor for a special job is about over.

Machinery designers, and production managers have learned that it is much more efficient and economical to obtain a motor with exactly the electrical and mechanical characteristics required to perform a specific job than it is to try to doctor up a standard "shelf" motor to do the job.

Speed and horsepower are no longer the major measuring stick of motor requirements—they are merely incidental to the many other characteristics available in electric motors today.

For over forty years we have been developing special motors for special jobs—our engineering department has a wealth of experience along this line—

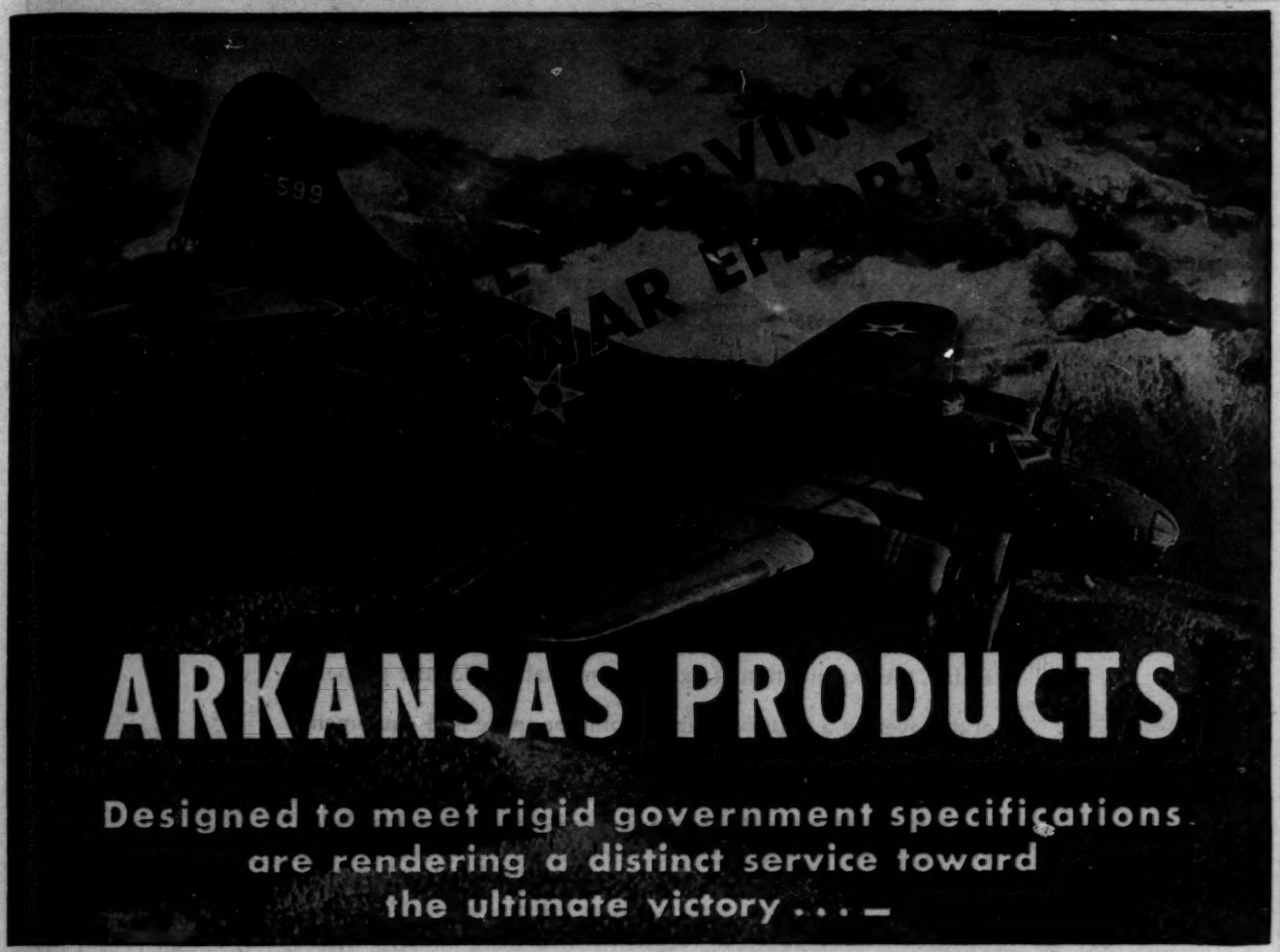
* * *

Our engineering development department has created many outstanding — perhaps revolutionary — improvements in electric motor design, construction and performance that are now playing an important role in helping win this war.

Many of these important new motor developments will also play an important role in the post-war period.

Our engineering development department will welcome the opportunity of discussing your post-war electric motor problems with you.

THE LOUIS ALLIS CO., MILWAUKEE 7, WIS.



ARKANSAS PRODUCTS

Designed to meet rigid government specifications are rendering a distinct service toward the ultimate victory . . . —

MILDEW INHIBITORS

for various types of cotton cloth and yarn non-toxic—non-irritating

FUNGICIDE M: a single product combining a mildew inhibitor and water repellent for producing a mildewproof water repellent finish on insect netting, tapes, sheeting, webbing, thread, etc., in one operation.

FUNGICIDE PG: for mildewproofing duck, plied-yarns, etc., by the two bath method.

AQUAROL*: produces a water repellent finish on uniform cloth, overcoatings and other military fabrics . . . — may be used in a single bath treatment with Fungicide GM to impart water repellency and mildew resistance to cottons . . . — also used in single bath with Arko Fire Retardant to produce water repellency and fire resistance.

FUNGICIDE GM: used in conjunction with water repellents in a one bath treatment to mildewproof cottons and impart a water repellent finish.

FUNGICIDE A: a mildewproofer for cloth coating processes . . . — used directly in the vinyl resin solution.

ARKO FIRE RETARDANT: for flameproofing uniform cloth, tentage, felts, etc.

CULOFIX L*: used as an after treatment in last rinse to prevent color bleeding in water of direct dyed cotton or rayon.

* Reg. U.S. Pat. Off.

ARKANSAS CO. INC., NEWARK, N. J.

Established 40 years

. . . to attain the greatest economy in maintenance and operating costs.

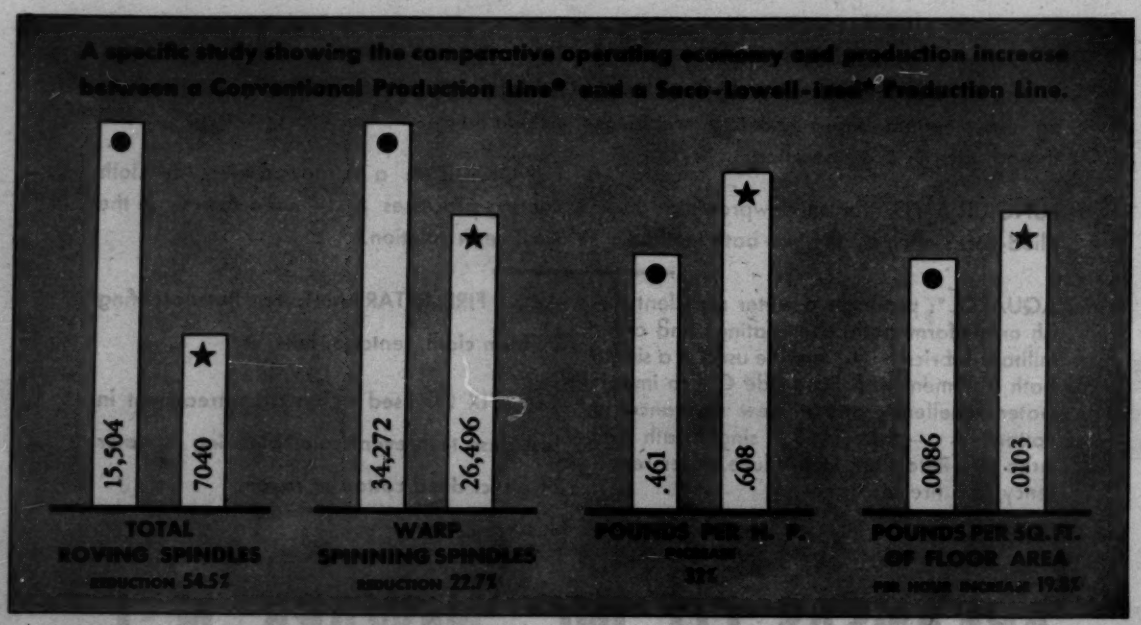
Saco-Lowell-ize

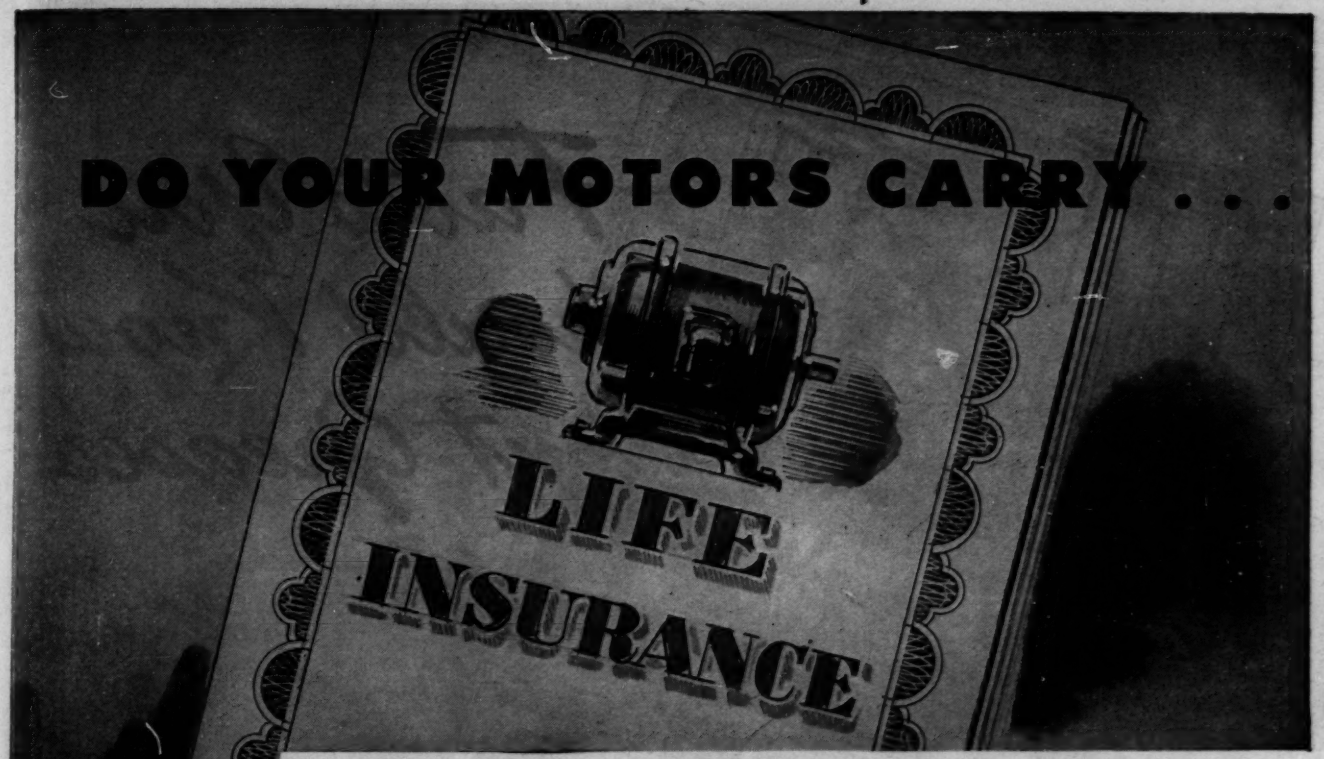
The chart below, based on a specific case, illustrates the improvement in production and operating economy which was achieved after Saco-Lowell-izing. This is not an unusual case, but is typical of the improved operating conditions which follow Saco-Lowell-ization.

Today, the examination of existing installations for the purpose of discovering a better utilization of floor space and equipment is a current responsibility of management. Many progressive mills are looking ahead right now and preparing plans for a Saco-Lowell-ization program, to be started immediately when war production is over.

SACO-LOWELL SHOPS

60 Batterymarch St., Boston, Mass. Charlotte Greenville Atlanta





The life of a motor is no longer than the life of its bearings. Bearing failure means motor failure and shutdowns. And the bearings may fail for any or all of the following reasons:—(a) poor design and construction; (b) neglected lubrication; (c) use of lubricant of poor quality; (d) dust and dirt in the bearings.

MOTOR MANUFACTURERS WHO HAVE ADOPTED NORMA-HOFFMANN "CARTRIDGE" BALL BEARINGS ARE PROVIDING THEIR CUSTOMERS IN-BUILT MOTOR LIFE INSURANCE--IN EFFECT, A GUARANTEE OF LONGER, MORE TROUBLE-FREE, LOWER-COST MOTOR PERFORMANCE—because:—

A. The "CARTRIDGE" BEARING is a NORMA-HOFFMANN PRECISION product, designed EXPRESSLY to meet electric motor requirements.

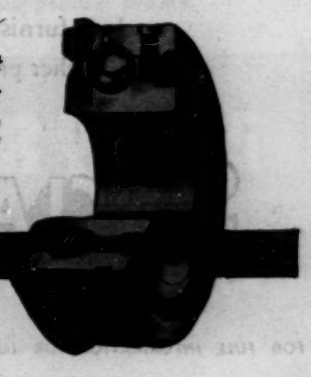
B. With its double-row width, the "CARTRIDGE" BEARING provides WITHIN ITSELF a supply of lubricant at least twice that of any other single-row ball bearing.

C. The "CARTRIDGE" BALL BEARING is loaded at the factory with NORMA "STABILITY-TESTED" GREASE—a high-duty lubricant which has exceptional life and a wide temperature range, and moreover is chemically stable and water-repellent.

D. The highly efficient, wearless metal seals of the "CARTRIDGE" BEARING, so effective in KEEPING LUBRICANT IN the bearing, are equally effective in KEEPING DUST AND DIRT OUT. And they are removable and replaceable, making bearing inspection easy.

These, and other, distinctive features explain why so many motor manufacturers, seeking to assure their customers MAXIMUM MOTOR LIFE, have adopted NORMA-HOFFMANN "CARTRIDGE" BALL BEARINGS for their latest and most efficient motor models.

Ask for motors carrying the "life insurance" that NORMA-HOFFMANN "CARTRIDGE" BEARINGS provide. They will be a sound and lasting investment, returning good dividends in lower costs, longer life, and freedom from shutdowns.



NORMA-HOFFMANN BEARINGS CORP'N, STAMFORD, CONN. FOUNDED 1911

TO WIN THE WAR • WORK • FIGHT • BUY WAR BONDS

—Facts You Should Know about Greases

Are you familiar with the composition of lubricating greases? . . . . . Do you know the different grease types . . . their virtues . . . their weaknesses? . . . . . Are you informed about proper selection and correct application?

This and other information, vital to every industry, is contained in "Lubricating Greases," a new Sinclair brochure published by America's outstanding manufacturer of lubricants.

"Lubricating Greases" by text and chart furnishes you with facts essential to higher production and lower upkeep in individual machine or complete plant operation.

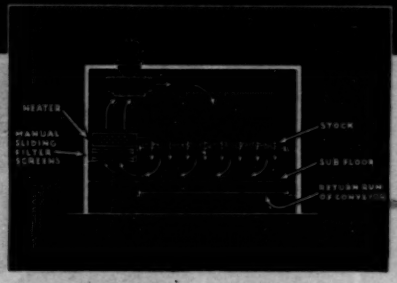
If you are interested in more efficient, more economical lubrication with a greatly reduced inventory of greases you will want a copy of "Lubricating Greases." Write today for a copy—with our compliments.

SINCLAIR TEXTILE LUBRICANTS

FOR FULL INFORMATION OR LUBRICATION COUNSEL WRITE SINCLAIR REFINING COMPANY, 630 FIFTH AVENUE, NEW YORK 20, N. Y.

IMPROVE QUALITY WITH THE

PROCTOR IMPACT DRYER *for* WOOL STOCK



(Above) The Proctor Impact Dryer for Pulled Wool in the Grease, Scoured Wool, Neutralized Wool after Carbonizing, and Shredded Rags, viewed from the feed end. (Right) Cross section illustrates unique method of air circulation, explained fully below.

In addition to the many important economies made possible by increased production, the quality of wool dried in the Proctor Impact Dryer is much superior to that obtained from older machines. Due to the careful control which is possible with this machine, plus the unique method of air circulation, stock goes through this dryer at a faster speed and is therefore subjected to heat for a shorter period of time. Heated air, impinged intermittently at a high velocity on the material, as it is conveyed through the dryer, agitates the stock, keeping it in constant motion during the entire drying process. This assures the quick, uniform drying of the material, on top, bottom and all the way through... and results in the new, high quality of the stock produced by this dryer.

NOW IS THE TIME

It is none too soon for you to be giving careful consideration to your postwar equipment needs. A little time-out now will undoubtedly save you a considerably more costly "time-out" period when the conversion comes. Now is the time to let Proctor engineers assist you in planning for the new machinery that will help you increase your postwar profits.

PROCTOR TEXTILE DRYERS

PROCTOR & SCHWARTZ · Inc · PHILADELPHIA

TEXTILE BANKING COMPANY

Factoring Service

Puts your sales on a cash basis
Strengthens your cash position
Relieves you of credit losses

55 MADISON AVENUE • NEW YORK

Caustic Soda

Penn Salt Liquid Caustic Soda is shipped in tank cars specially designed for speedier, safer unloading. These modern 8000-gallon tank cars have a protective lining, are insulated and are equipped with caustic resistant valves and interior fittings. They can be quickly and completely emptied —no wasted caustic, no lost time.

Penn Salt Caustic Soda is supplied as 50% and 72.73% solutions in tank car quantities; as a solid in 750 lb. drums; or in flake form in 400 lb. and 125 lb. drums.

Our technical staff is at your service for help with handling problems. Write for complete information.

TO THE TEXTILE INDUSTRY
PENN SALT SUPPLIES

Caustic Soda	Hydrogen Peroxide
Sodium Hypochlorate	Soda Ash
Sulphuric Acid	Hydrochloric Acid
Carbon Bissulphide	Ammonium Persulphate
Anhydrous and Aqua Ammonia	

PENNSYLVANIA SALT
MANUFACTURING COMPANY
Chemicals

1000 WIDENER BUILDING, PHILADELPHIA 7, PA.
NEW YORK • CHICAGO • ST. LOUIS • PITTSBURGH • MINNEAPOLIS • WYANDOTTE • TACOMA

Die castings, produced by Alcoa, offer a means of utilizing the light weight of aluminum to excellent advantage. Parts have the lightness which permits higher speed operation of equipment, makes handling easier, reduces wear and tear on machines. High quantity and quality production are maintained.

Aluminum die castings have properties suiting them to hard work; high strength, permanence of dimensions and shape, resistance to corrosion, and ability to withstand elevated temperatures. The die-casting process makes possible large quantity production of parts having uniformity and close tolerances, thin sections and smooth surfaces. As a result, Alcoa die-cast products are most economical.

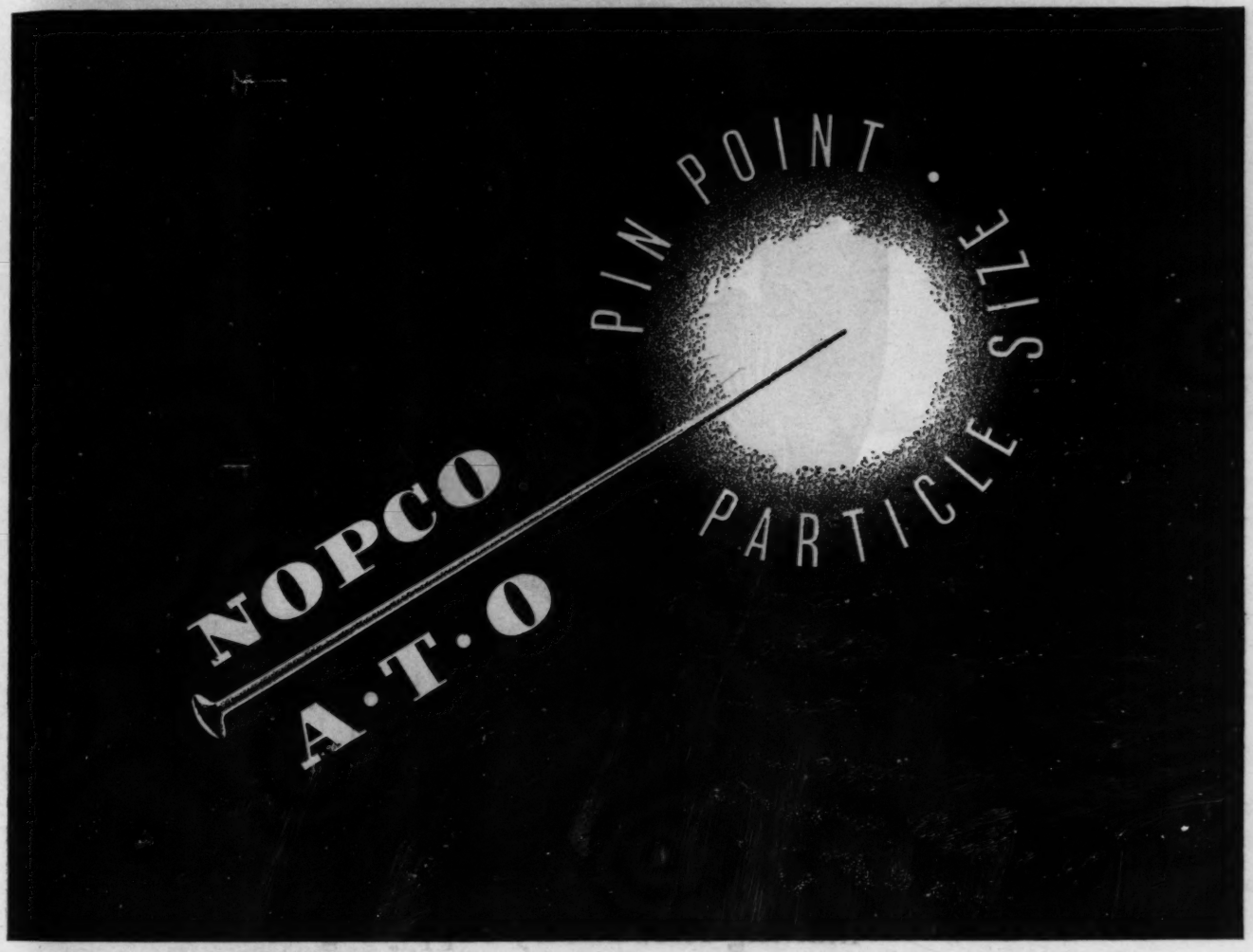
Alcoa's years of experience in this kind of work help you use die castings to best advantage. Assisting in the design of parts to be die cast—building dies for that production—making millions of die castings involving every conceivable problem; this is the experience at your command when you call on Alcoa.

Whether you're producing war materials or planning for peacetimes, we'll gladly help you determine what Alcoa Aluminum die castings will accomplish for you. ALUMINUM COMPANY OF AMERICA, 1939 Gulf Bldg., Pittsburgh, Pa.

ALCOA ALCOA ALUMINUM REG. U. S. PAT. OFF. **ALUMINUM**

What has the point of a pin to do with

WATER REPELLENCY?

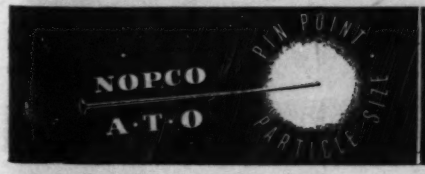


SIMPLY THIS. 97 *microns* can perch comfortably on the point of a pin. And the particles of ATO—Nopco's new improved product which imparts water repellency to all types of fabrics—are of *micron size. They are as fine as that.*

Such uniform particle fineness gives Nopco ATO this advantage. It disperses readily in water to form a stable *emulsion.* And through its stability, this colloidal one-bath water repelling material suspends evenly in water, spreads uniformly throughout the fabric, and imparts a degree of water repellency not materially diminished by several washings or dry cleanings.

Nopco ATO leaves a satisfactory handle to the goods. It meets the Government's spray-rating tests. It's economical and easy to apply. And it's equally suitable for imparting water repellency to cloth or suitings for light weight sports apparel—Mackinaw cloth, showerproof overcoating and other heavyweight materials—industrial drills and other cotton fabrics—or rayon piece goods.

Write for full information today.



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Help Us Help Uncle Sam

BY *CONSERVING* PAPER

Paper protects war supplies, food, medicines, clothing! Paper serves civilians, too, packaging articles of first importance to living. Let's conserve paper because *paper packs a war punch!* We are making it count by supplying containers and other paper products to every *vital* need which we can possibly meet.

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Manufacturers of CORRUGATED CONTAINERS · FOLDING CARTONS · PAPER BAGS · PAPER PRODUCTS

BUILT to "TAKE IT"

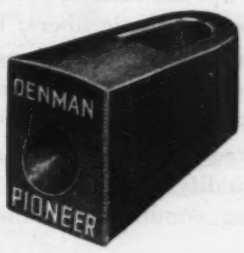
on Round-the-Clock Schedules

It didn't take a war to prove the superiority of Denman's Improved Box Loom Picker. Today's heavy production schedules merely serve to confirm the experience of leading textile mills that Denman Box Loom Pickers give you

IMPROVED BOX LOOM PICKER

- TIME TESTED
- SERVICE PROVEN
- LONGER WEARING
- FEWER STOPPAGES

Lowest Cost Per Loom Per Year



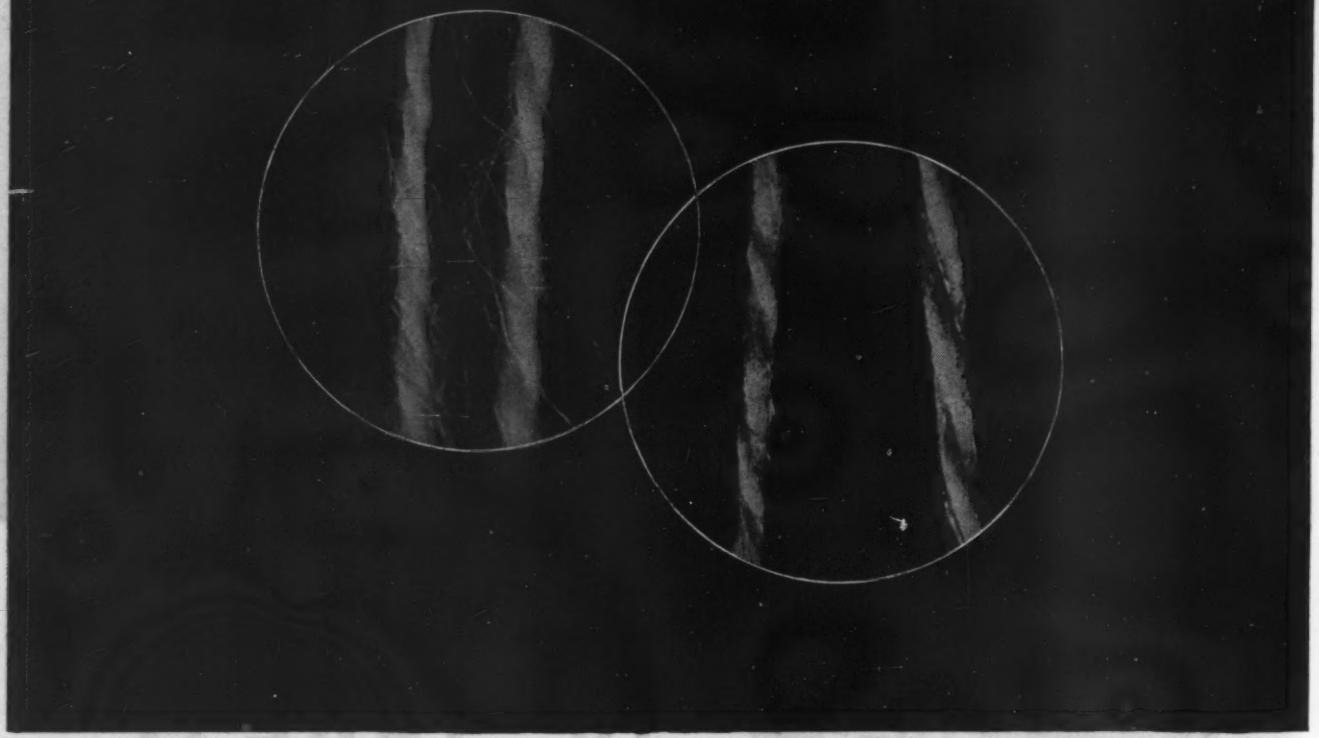
Made by DENMAN TIRE & RUBBER CO., Manufacturers of the famous Denman Loop Pickers

Exclusive Sales Representative

The TERRELL MACHINE CO., Inc.

CHARLOTTE, NORTH CAROLINA

PROBLEM: Planning for new methods and processes in postwar textile operations



SOLUTION: **New air conditioning systems to provide constant control of temperature and humidity**

In the immediate postwar period further advances in textile mill air conditioning will overshadow that of even the most progressive of today's mills.

Special control necessary for the new synthetic fibers; higher speed machinery that generates more heat; the necessity for eliminating static electricity; the desire to increase production and improve quality; the need for better working conditions in the mills; the trend toward windowless buildings —all these will be factors contributing to the demand for improved air conditioning.

In some installations humidity and temperature control alone will suffice. In others, more elaborate provision such as better air cleaning and cooling with refrigeration will prove economical. In mills using different raw materials and producing a variety of products flexible control will be a *must*.

Whatever the required installation . . . whether simple or elaborate, small or large . . . you can rest assured Carrier Air Conditioning equipment will meet its needs.

When the war is won, Carrier engineering will continue to lead in the development of new air conditioning for new methods and processes in the textile industry.

•

CARRIER CORPORATION, Syracuse, N. Y.

Carrier

ARMY E NAVY

AIR CONDITIONING • REFRIGERATION

FORTY-TWO YEARS EXPERIENCE IN INDUSTRIAL INSTALLATIONS

Here's what you should know about

EASIER LIGHTING MAINTENANCE

SEVEN STEPS to Proper LIGHTING MAINTENANCE
G-E MAZDA LAMPS
GENERAL ELECTRIC
TABLE OF CONTENTS
The Seven Steps to Proper Maintenance
Recommendations for Stocks of Lighting Parts
Labor-Saving Maintenance Devices
A Check List for Fluorescent Equipment
Some Facts About Lamps

New 16-page G-E Manual—All Latest Information

NEVER before have so many useful facts and features on lighting maintenance been put together so compactly and conveniently in one 16-page manual.

"Seven Steps to Proper Lighting Maintenance" covers the subject briefly, clearly and from a practical viewpoint. Here's the information you'd like to have on lighting maintenance, and labor-saving maintenance devices, plus a special tabulated quick-reference check list on fluorescent maintenance.

There's another feature you'll like—a guide to stocks of lighting parts . . . telling you what stocks you should have in your plant. No fuss and bother . . . no waiting . . . when you need replacement parts!

Hear the General Electric radio programs: "The G-E All-Girl Orchestra," Sunday, 10 p.m. EWT, NBC; "The World Today," news every weekday, 6:45 p.m. EWT, CBS.

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GENERAL ELECTRIC

"TO MAKE LAMPS STAY BRIGHTER LONGER"
The Creed of G-E RESEARCH

MAIL THE COUPON BELOW FOR YOUR FREE COPY TODAY!

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Gentlemen:
Please send a copy of your new booklet, "Seven Steps to Proper Lighting Maintenance," to:

Name .....

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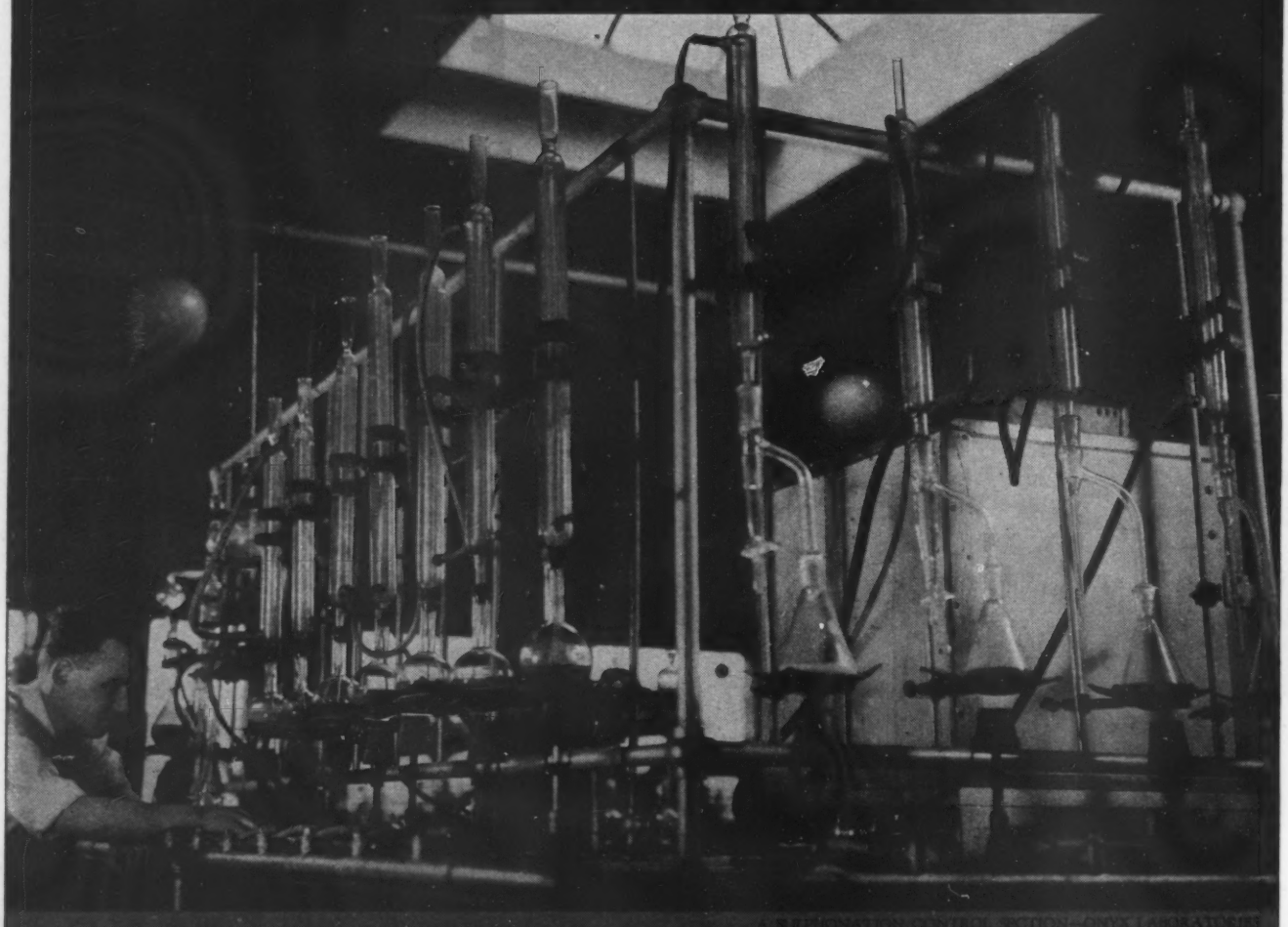
City and State .....

LET'S ALL BACK THE ATTACK—BUY MORE WAR BONDS

ONYX



A SULPHONATION CONTROL SECTION—ONYX LABORATORIES

SULPHONATION

For more than thirty (30) years we have been leaders in the development and manufacture of sulphonated products for the textile and allied industries. Extensive research enables us to successfully apply many methods of sulphonation to produce finishing and processing oils, detergents, wetting and emulsifying agents and a great variety of specialized products. Your inquiries are solicited.

ONYX OIL & CHEMICAL COMPANY

JERSEY CITY, N. J.

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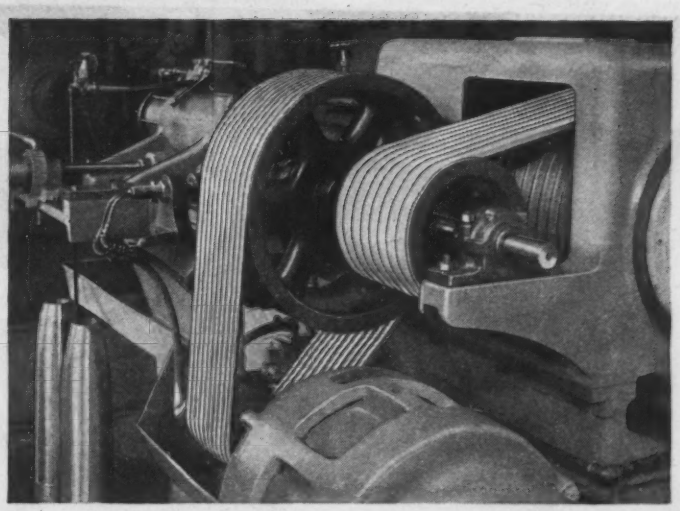

***Used in Many Industries**

On this machine which profiles the outside of high-explosive shells, Gates V-Belts of special synthetic rubber are used because of their proved ability to withstand bad oil conditions. By actual records, on hundreds of installations where oil or heat conditions are severe, Gates special synthetic V-Belts are wearing 2 times to 3 times as long as any natural rubber belts ever used!

Widely Used* for Over 6 Years

GATES *Synthetic Rubber* V-Belts

—Have Proved *Superior*

Even to Belts of *Natural* Rubber!

Gates began making V-Belts entirely of synthetic rubber more than 6 years ago. Each year since then, thousands upon thousands of Gates synthetic rubber V-Belts have been making outstanding service records in aircraft factories, in steel mills, in ordnance plants, in machine parts factories—in fact, in practically every type of industrial plant in the nation.

This long *head-start* in the fabrication of synthetic rubber V-Belts was no accident. It was started deliberately, in peacetime and not under pressure of necessity. The synthetic rubber selected by Gates is a very *special* synthetic rubber—not in any sense merely a "substitute" for rubber. In certain very important applications it is *greatly superior* to natural rubber.

For example:—one special synthetic rubber selected by Gates has the unusual characteristic of withstanding oil and heat much better than even natural rubber. Where heat and oil conditions are especially severe, Gates special synthetic V-Belts are outwearing any natural rubber V-Belts by as much as 230%.

Of the very greatest importance to V-Belt users today is Gates' unusually long experience and success in making V-Belts of synthetic rubber. This is especially important now because the time has come when Gates' superior knowledge of synthetic rubber can be put to work for you right in your own plant.

You have only to look in your telephone directory and call the Gates Field Engineer. He will put at your service the full benefits of Gates' knowledge and experience without the slightest obligation.

443

THE GATES RUBBER COMPANY

Engineering Offices and Stocks in All Large Industrial Centers

GATES VULCO ROPE DRIVES

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No "softies", these "Unbrako" Self-Locking Hollow Set Screws! Made tough at the start, they're hardened to "stand the gaff" and possess almost unbelievable strength, as proved by actual physical tests. What's more, they defy the menace of vibration and will not work loose of their own accord. When tightened as usual, the knurls *dig in and lock automatically.* Yet they can be readily removed with a wrench and used over and over again any number of times. Available in all sizes from No. 4 to 1½" diameter. Remember the name —be sure to specify "Unbrako" on your next order.

Knurling of Socket Screws originated with "Unbrako" years ago.

OVER 40 YEARS IN BUSINESS

STANDARD PRESSED STEEL CO.

JENKINTOWN, PENNA., BOX 582 • BRANCHES: BOSTON • DETROIT • INDIANAPOLIS • CHICAGO • ST. LOUIS • SAN FRANCISCO

SANDOZ PRESENTS *The color achievement of the month*

PRINCETON'S *Deep-Ocean Blue* FOR WAVES

There's one color that's "Fashion-first" for thousands of young women as our country swings into its third year of the war.

It's WAVE-blue, picked right off the Star-Spangled Banner for the uniforms of the Women's Appointed Volunteer Emergency Service.

Sandoz, always sensitive to the swings of style, was early in concentrating a good part of its production of acid and chrome dyes on colors that meet the services' requirements . . . and now serves many leading manufacturers like Princeton Worsted Mills who in turn serve the fabric needs of the men and women in uniform.

It will pay you to become familiar with other Sandoz accomplishments in acid and chrome dyes for woolens, and other lines for cottons and synthetics. For instance, a recent Sandoz achievement for cotton goods is CEROL TGI, a combined waterproofing and mildewproofing agent of extreme stability, which ends the danger of delays in reprocessing. Non-toxic; suitable for garments worn next to the skin.

Application laboratories are maintained in New York, Boston, Philadelphia, Charlotte, Los Angeles and Toronto; stocks are carried in these cities. There are also Sandoz branches in Chicago, Paterson and Providence.

Watch for another Sandoz "Color Achievement of the Month"—saluting another Sandoz customer among the leaders of the Textile Industry. It will appear next month.

SANDOZ CHEMICAL WORKS, INC., 61 VAN DAM STREET, NEW YORK 13, N. Y.

SANDOZ *thinks ahead with textiles*

SANDOZ

THE
TEXTILE MANUFACTURER
in the Post-War World

AMONG THE three essentials of life, which are food, shelter and clothing, the production of textiles seems least likely to be radically altered in post-war conversion.

New fabrics may conceivably evolve, but the art of weaving will remain the basic means of translating all materials into fabrics for wearing apparel and countless other uses.

The textile manufacturer therefore, while watchful, need not too seriously be concerned with drastic product innovations and changes.

He can devote the major part of his post-war thinking toward the orderly production of what his post-war market will readily buy.

In this effort, his selling agent is a close and able ally.

The experienced selling agent, with staffs strategically located in the major buying centers, is sensitive to trends.

His trade and financial contacts keep him aware of long range movements, both national and international, which may anticipate important changes in the scarcity or abundance of raw materials.

He appreciates the impact of fashion and style.

In many other ways, the selling agent is the manufacturer's right bower.

Together, as in the case of Minot Hooper and Company and the mills it represents, the mill and the selling agent make up a team which combines skillful production with profitable distribution. The value of such cooperation was evident long before this war. It will be evident long after it, too.

MINOT HOOPER & COMPANY

Selling Agents, 40 Worth Street, New York City

(established 1841)

BOSTON • CHICAGO • SAN FRANCISCO • ATLANTA

Mission Accomplished!

"... OBJECTIVE ATTAINED ---
UNEVEN BLEACHING MINIMIZED,
WATER CONDITIONED ..."

when you bleach with SOLVAY
TRADE MARK REG. U. S. PAT. OFF.

LIQUID CHLORINE

Textile manufacturers producing for the Armed Forces are accomplishing their objectives—*uneven bleaching minimized, uniform colors, color fastness!*

For fabrics that answer the call to colors manufacturers find that SOLVAY Liquid Chlorine is accomplishing its mission as an effective bleaching agent and water conditioner. 62 years of controlled quality, purity and uniformity are your assurance of satisfaction and dependability.

SOLVAY SALES CORPORATION

Alkalies and Chemical Products Manufactured by The Solvay Process Company

40 RECTOR STREET NEW YORK 6, N. Y.

Two Cotton Mill Tests...Only One Result

Standardization on

SAFCO Textile Lubricants

No Scored Rolls with Ambient E. R.

A Southern cotton mill tested Safco Ambient E. R. on wick-feed saddles on their spinning frames. The test was made on the recommendation of a Swan-Finch Service Engineer who had been invited to inspect their plant lubrication methods.

Ambient E. R. now keeps their wicks soft and pliable—enabling it to flow to the rolls as needed.

The customer reports that they no longer have dry or scored rolls and wicks do not carbonize.

No Clogging— Cleaner Floors with Slo Flo 25½

A large Southern mill, weaving and spinning both rayon and cotton, ran a plant test on Safco Slo Flo 25½ on their looms in comparison with the lubricant they had been using for several years. In both instances, test conditions were identical.

Slo Flo 25½ quickly proved its better performance under average plant conditions. Results showed that Slo Flo 25½ stays in the bearings longer and does not run out on the floor. Oil holes do not clog —and better lubrication, cleaner floors and lowered costs of parts replacement add up to complete customer satisfaction.

From opening room to loom, there's a SAFCO lubricant for every textile mill bearing. These special lubricating oils and greases are compounded from years of experience and are manufactured to meet the many conditions encountered in textile plants. They have smoothed the road to better production in many mills...and they can prove better performance in your plant, too!

Here's how you can prove SAFCO superiority to your own satisfaction—on terms that are simple, inexpensive and conclusive. Merely ask a Swan-Finch Service Engineer to recommend the proper Safco lubricant for your specific conditions. Run a test in your own plant—judge the results for yourself. *If you do not get better performance with* SAFCO *Textile Lubricants, we'll cancel your invoice for the test drum.*

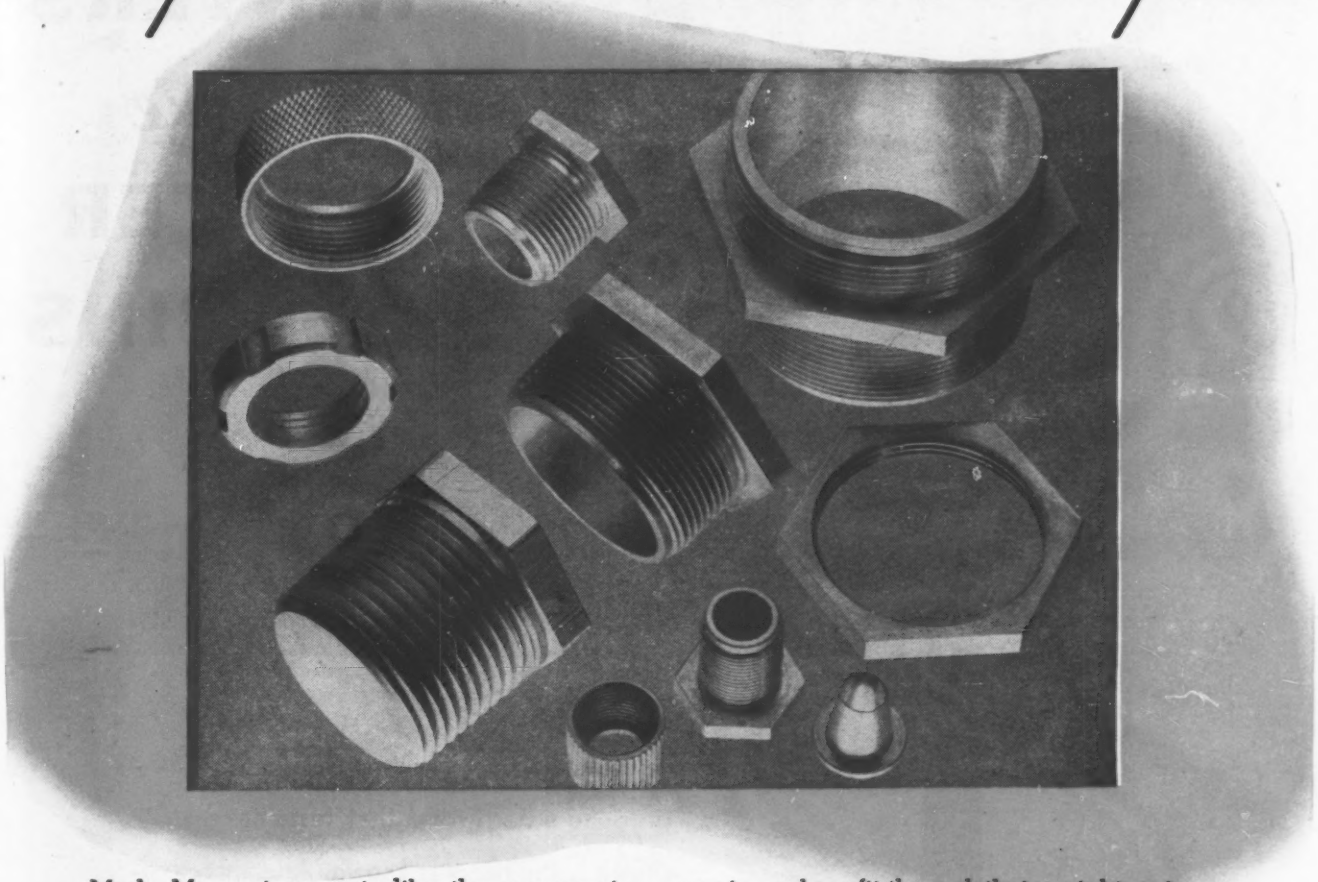
Swan-Finch Oil Corporation

R. C. A. BUILDING (WEST), NEW YORK 20, N. Y. • 2596 Hart Avenue, Detroit 14, Mich. • 201 North Wells Street, Chicago 6, Ill.

MAKERS AND MARKETERS OF SAFCO CORE OILS AND COMPOUNDS • SAFCO METAL WORKING LUBRICANTS • SAFCO MAINTENANCE LUBRICANTS • SAFCO LUBRICATING SPECIALTIES

Weight Saving

is important even in these small parts



Mazlo Magnesium parts like these account for important weight savings. Though they are small, there may be hundreds of them on a single piece of equipment. They are time savers, too, for machinery manufacturers, because the Mazlo Magnesium bar stock, from which they are made, machines at high speeds.

When you think of magnesium as a means of saving weight on textile machinery, of speeding up equipment, of reducing vibration and improving product quality, go all the way. Include Mazlo Magnesium parts like these and gain maximum benefit through their weight saving.

To those designers who are wondering how to employ magnesium to best advantage, American Magnesium's engineers offer their services. Certainly, a great deal of equipment working on wartime products can be made to perform better by a judicious use of lightweight Mazlo Magnesium castings, forgings, screw machine products, shapes or sheet.

For any assistance on the use of magnesium, write Aluminum Company of America, Sales Agent for Mazlo Magnesium Products, 1704 Gulf Building, Pittsburgh, Pennsylvania.

MAGNESIUM MAZLO PRODUCTS

REG. U.S. PAT. OFF.

AMERICAN MAGNESIUM CORPORATION

SUBSIDIARY OF ALUMINUM COMPANY OF AMERICA

HARD WINTERS *Make* BETTER BOBBINS

B H

True to the Gauge

Card Room,

Automatic Loom,

Filling,

Warp,

Twister

Bobbins

THE cold winters in Vermont help to produce a hardwood that tests have shown is the hardest known. And this high quality, durable Vermont hardwood is used exclusively in Bowen-Hunter Bobbins. That's why Bowen-Hunter Bobbins have longer life and give better service. Now — when your mill is probably running beyond its capacity—you need the best materials available. Buy the best in bobbins . . . Specify Bowen-Hunter.

BOWEN-HUNTER BOBBIN CO.

East Corinth, Vermont

SOUTHERN REPRESENTATIVES:

The McLeod Companies, Greensboro, N. C., and Greenville, S. C.

SEVEN-LEAGUE

SEVEN LEAGUE BOOTS have been donned by this nation's dyers and dyestuffs makers since we entered the war. Speed and production became the order of the day. Under the pressure of war we've greatly increased production of Ponsol dyes for military requirements . . . helped develop speedier, more economical methods of application.

During this period, it should be mutually helpful for us to work together. Our laboratories can help you solve your wartime technical problems. And we may, in addition, gain the experience and knowledge which will guide us in advance, to profitable solutions of tomorrow's problems.

E. I. du Pont de Nemours & Co. (Inc.), Organic Chemicals Department, Dyestuffs Division, Wilmington, Delaware.

Du Pont Dyestuffs

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

DU PONT DYESTUFFS

Aralac . . fibre of tomorrow, here today!

The crisp rayon and ARALAC covert cloth . . . developed in your mills for Spring, 1944 . . . is an important fashion first right now. The fabrics you're making today . . . those blends of ARALAC with rayon, or ARALAC with wool . . . will make history in the months to come. But the tomorrow of ARALAC is even greater than any one can imagine! The beauty, body, drape and 'feel' that ARALAC fibre blends into manipulated fabrics offers limitless possibilities for new weaves and finishes . . . entirely new fabric conceptions. Keep ARALAC running in your civilian lines today . . . in preparation for that bright tomorrow!

ARALAC, INC.

71 Vanderbilt Avenue, New York

★T. M. Reg. U. S. Pat. Off.

ARALAC, produced by a division of NATIONAL DAIRY PRODUCTS CORPORATION, represents but one of the many contributions this nation-wide organization is making toward the more efficient utilization of America's agricultural resources.

Why are so many drives of all types being belted with.. GRATON AND KNIGHT "Research"?

...Because "Research" gives you

THE 3 BIG ADVANTAGES OF QUALITY + LEATHER

and

3 EXCLUSIVE FEATURES OF "RESEARCH" + BELTING

MORE PRODUCTION, because leather's superior traction, which improves with age, means more power delivered ... greater average machine production.

LESS MAINTENANCE, because leather has natural "give-and-take" to handle shock loads without undue strain on belt or equipment.

LONGER LIFE, because the tough, interlocking fibres of leather have high resistance to both surface wear and internal friction.

MOST PRODUCTION, because "Research" currying, added to leather's superior traction, creates highest frictional surface. 3% more production guaranteed.

LEAST MAINTENANCE, because G&K's pre-stretching process removes non-elastic stretch, resulting in fewer take-ups. Tensile strength is also increased 15%.

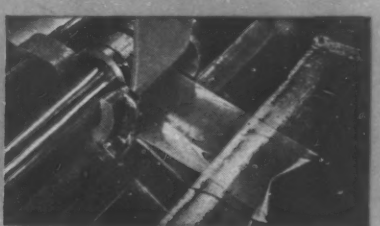
LONGEST LIFE, because precise, weight-controlled lubrication of fibres develops extremely long life. "Tension-Cementing" insures against ply separation.

YOU'LL GET AT LEAST 3% MORE PRODUCTION ...2 to 4 TIMES LONGER LIFE...ON LONG OR SHORT CENTERS

MORE PULLEYS ARE BELTED BY "RESEARCH" THAN BY ANY OTHER BRAND!

In G&K's currying process, the amount of grease worked back into the dry leather to give pliability and frictional surface is controlled by precise weighing — for more "built-in" pulley grip.

An exclusive method — pre-stretching according to hide characteristics — removes initial stretch and increases tensile strength — proved by Research performance in eliminating excessive take-ups.



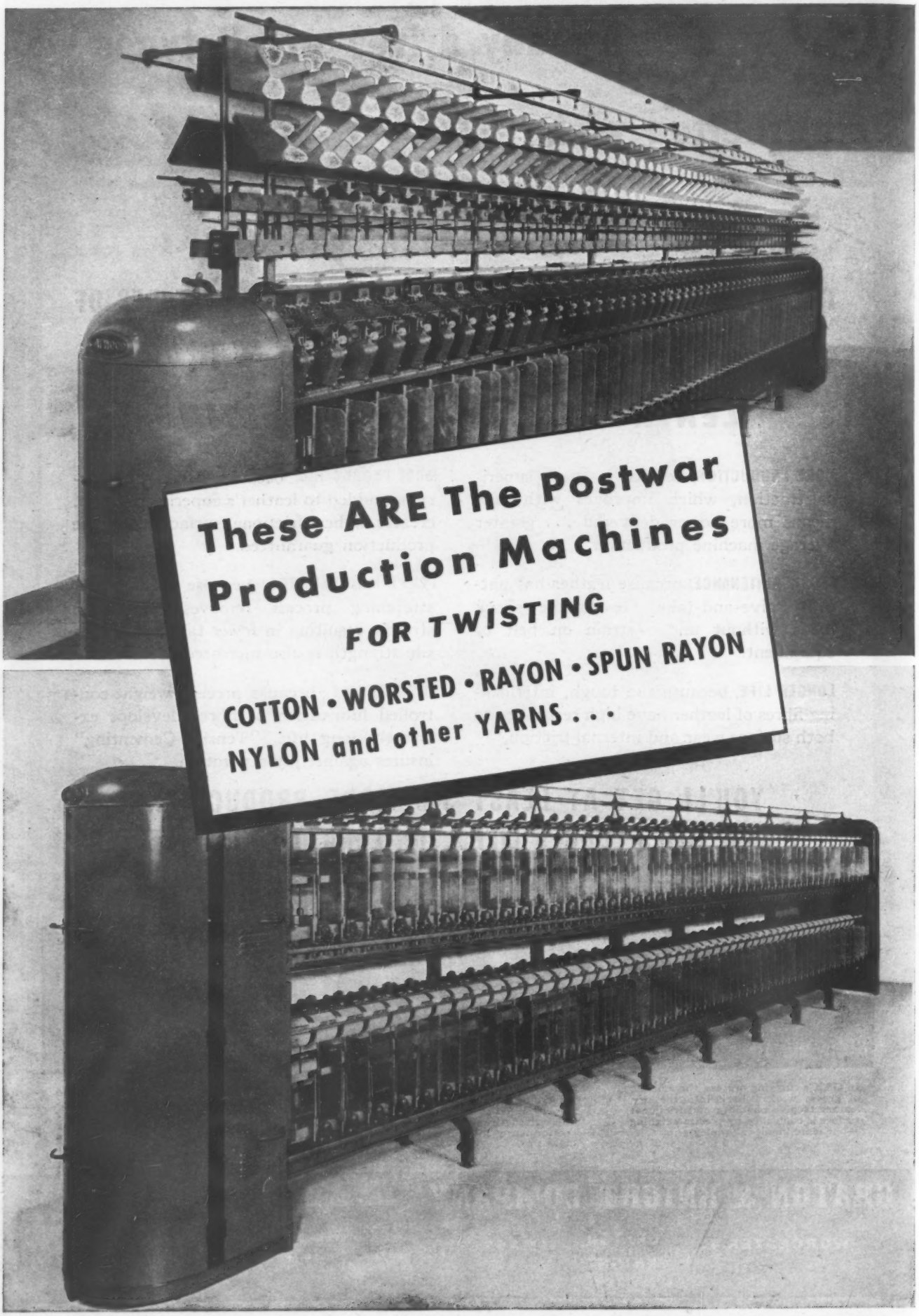
Tension-Cementing — replacing hand methods — applies the cement with perfect uniformity while belt is under working tension — for most uniformly high adhesive strength ever obtained in belting.

GRATON & KNIGHT COMPANY

WORCESTER 4, GRATON AND KNIGHT MASS.

Graton & Knight is the only leather belting manufacturer with complete nation-wide service facilities. Branches in Chicago, Cleveland, Dallas, Detroit, Kansas City, Minneapolis, New York, Philadelphia, St. Louis, San Francisco; distributors in all industrial centers.

Look under "Graton & Knight" in Belting section of Classified Telephone Directory or THOMAS' REGISTER.


These ARE The Postwar Production Machines
FOR TWISTING
COTTON • WORSTED • RAYON • SPUN RAYON
NYLON and other YARNS . . .

The ATWOOD "5B" RING TWISTER

The ATWOOD "5B" RING TWISTER is already demonstrating its value, versatility and economy for the production of clean, accurately twisted, uniform yarns of almost every character and combination. It handles from 2 to 12 ends—delivers from cakes, cones, bobbins or tubes—produces any desired twist, from ½ to 70 turns per inch, on any size package up to 5 inch diameter, 9 inch length.

Here is the RING TWISTER for tomorrow's yarns. It is thoroughly tested and production proved *today*.

Now is the time to get the whole story on the Atwood Ring Twister and its advantages as they apply to *your* anticipated *product* and *production* requirements.

The ATWOOD Model 110 UP TWISTER

The ATWOOD Model 110 UP TWISTER represents a logical and successful evolution from a line of Atwood Twisters that has been accepted for close to a century as the standard for high grade yarn production. It turns out large, precisely twisted packages, bobbin or headless, up to two pounds. The quality, dependability and economy of its performance is already demonstrated and established on *your* types and weights of yarns.

We stand ready to supply all the facts and figures. Now is the time to have this information on tap.

AWARDED ATWOOD

THE ATWOOD MACHINE COMPANY, STONINGTON·CONN·U·S·A·

PICKER REPAIR PARTS WHEN YOU NEED THEM

WE keep on hand a very complete stock of all parts for Kitson pickers, and can usually ship the same day an order is received. We also can furnish beaters, ball bearings, screens and many other parts for other makes of pickers.

Under wartime conditions, it is of the utmost importance to keep machines running constantly and to be able to get prompt delivery on repair parts for keeping them running constantly.

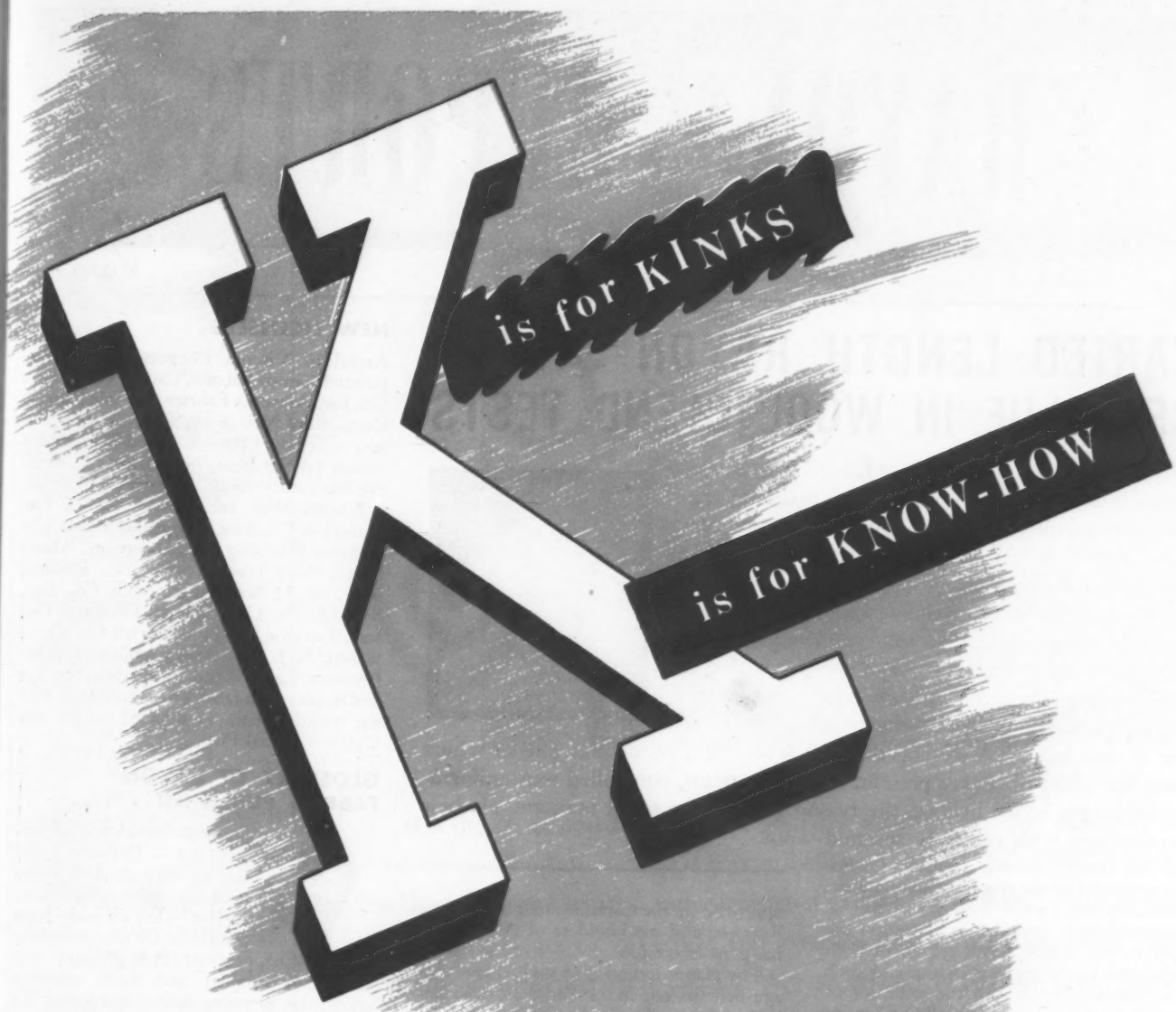
In an emergency, a telegram or a telephone call will have the necessary repair parts at your plant the following day.

It is also a good idea to check your stock room and order picker parts on which the stock is low or is exhausted.

We can completely rebuild your pickers exactly like new, and when pickers are practically worn out and in need of more than ordinary repair parts, they can be completely renewed at far less than the cost of new machines with new frames.

AldricH MachinE

Greenwood, **WorkS** South Carolina



Ironing out the wrinkles in the chemicals supply situation continues to be a difficult job for the processor of civilian goods.

Ways-and-means, however, to smooth out many such production problems are available through the use of alternate non-priority materials. What these materials are... how they can best be utilized ...are part of the wartime information service that Cyanamid has undertaken with civilian goods industries specifically in mind.

Whatever your present difficulties may be growing out of the chemical shortage situation... consult with Cyanamid. Here we are prepared to work with you in the solution of your problems making recommendations that may not only "stop-gap" current needs but which may serve to open new opportunities for postwar processing developments.

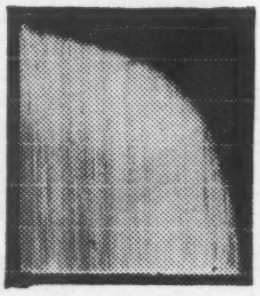
AMERICAN CYANAMID
& CHEMICAL CORPORATION
(A Unit of American Cyanamid Company)
30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

MANUFACTURERS OF
SULPHONATED OILS • PENETRANTS • FINISHES • SOFTENERS
SIZING COMPOUNDS • DECERESOL* WETTING AGENTS
AND OTHER SPECIALTIES FOR THE TEXTILE INDUSTRY
*Reg. U. S. Pat. Off.

RAYON REPORTS

Published Monthly by American Viscose Corporation, New York, N. Y. MARCH, 1944

VARIED LENGTH RAYON STAPLE OF VALUE IN WOOL BLEND TESTS



Varied length rayon staple fiber has decided advantages for worsted and woolen mills, as pointed out in a recent statement by the Textile Research Department of the American Viscose Corporation. The statement follows:

"Many manufacturers have made experimental yarns by very carefully sorting wool and selecting only the longer fibers and have thus been able to spin superior yarn. No one, however, could sort carefully enough to get a diagram in which the fibers are all one length. A sloping diagram would still result, but one in which very few short fibers are present. This very point, controlled non-uniformity of length is, we believe, the reason for the successful outcome of their experiments with carefully selected wool.

"Our reason for this belief is further strengthened by the results of spinning experiments conducted with rayon top of uniform length compared with tops of the new varied length rayon staple. In both cases, the rayon top was white and each was blended 50/50 with the same lot of black wool. This contrast allowed us to study the blending that followed each operation.

"The thoroughness of blending was in favor of varied staple length in every operation, and the final proof was strikingly demonstrated in fabrics containing each type of rayon. In addition to thoroughness of blend, the yarn containing varied length rayon was of more uniform diameter and resulted in lower burling and mending operations. These features have been substantiated by customers who are regularly using our varied length Fibro."

A.V.C. OPENS WASHINGTON OFFICE

The American Viscose Corporation has opened a Washington, D. C., office located at 504 Hibbs Building, 15th Street, N. W. Purpose of the new office is to serve as a liaison between the plant sales offices, and staff departments of the corporation and their Washington contacts.

A.V.C. RETIREMENT PLAN APPROVED

A retirement plan for employees of the American Viscose Corporation has been approved by the Commissioner of Internal Revenue and stockholders of A.V.C. and has gone into effect.

The plan is intended to supplement old-age benefits under the Federal Social Security Act, and provides for a retirement income for employees who reach the age of 65 years.

VINYON** E BANDAGES NOW BEING DISTRIBUTED

Elastic bandages made from Vinyon E, a relatively new yarn developed and produced by American Viscose Corporation,

are now on the market. They are manufactured by Becton Dickinson and Co., Rutherford, N. J. Vinyon E can be stretched to three times its original length. Until recently, it was confined entirely to military purposes, woven into surgical stockings and knee braces, tapes, cords, belts, and other articles needing elasticity.

NEW LICENSEES

American Viscose Corporation has appointed Cameo Fabrics, Cantor Greenspan Co., Inc., Meadtex Fabrics Co., Yale Fabrics Corp., all of New York, as converter licensees under the CROWN Tested Plan, under which fabrics containing CROWN rayon are laboratory tested for service qualities.

Beaunit Mills, Inc., Lowell, N. C.; The Hampton Co., East Hampton, Mass.; The Kenyon Finishing Co., Lawrence, Mass.; Sanco Piece Dye Works, Inc., Phillipsburg, N. J.; Stonecutter Mills Co., Inc., Spindale, N. C.; Brewster Finishing Co., Inc., Paterson, N. J.; Waldrich Co., Delawanna, N. J.; have been appointed finisher licensees. Each of these is qualified to dye and finish rayon fabrics in accordance with the requirements established under the CROWN Tested Plan.

GLOSSARY OF RAYON FABRICS PUBLISHED

A new booklet, "RAYON FABRICS — *Definitions of Rayon Fabrics and terms used in connection with Rayon*"—has recently been published by the American Viscose Corporation. This glossary will provide a broader and more accurate knowledge of rayon fabrics and terms. To receive a copy, simply address your request to American Viscose Corporation, 350 Fifth Avenue, New York City.

**T.M.—C. & C.C.C.

MAKE USE OF 4-PLY SERVICE

1 PRODUCT RESEARCH
Helps you get the right yarn.

2 FABRIC DEVELOPMENT
Helps you design new fabrics.

3 TEXTILE RESEARCH
Helps solve production and finishing problems.

4 "CROWN" TESTED
Helps provide scientific selling facts.

AMERICAN VISCOSE CORPORATION

Producer of
CROWN* *Rayon Yarns and Staple Fibers*

Sales Offices: 350 Fifth Avenue, N. Y. C. 1; Providence, R. I.; Charlotte, N. C.; Philadelphia, Pa.

Plants at: Marcus Hook, Pa.; Roanoke, Va.; Lewistown, Pa.; Nitro, W. Va.; Parkersburg, W. Va.; Meadville, Pa.; Front Royal, Va.

*Reg. U. S. Pat. Off.

Common Flange Ring
for Heavy Twisting

Oblique-groove Eadie
Oil-lubricated Ring

Eadie Multiple-groove
Greased Ring

Eadie Laced Wick
Oil-lubricated Ring

Standard DIAMOND FINISH
Flange Ring

Curved Web Ring originated
by DIAMOND FINISH

WE MAKE ALL
TYPES OF RING
HOLDERS

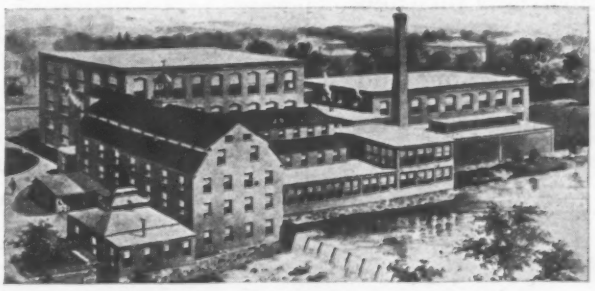
Cast Iron Holder with
Pin Type Cleaner

Stamped Holder with
Integral Traveler Cleaner

Rings are Repairs that add Production

Photo Courtesy Pepperell Mfg. Co.

To make a repair that not merely maintains, but actually increases production — that is a possibility of DIAMOND FINISH Rings. Replacing worn rings, our standard styles customarily boost production 10% to 12%, while our special lubricated rings not infrequently show gains up to 50%. We stand ready to give you the ring study and ring service that combine to yield you a very satisfying result. Call on us!



WORLD'S LARGEST RING PLANT

Our 71 years' specialization on rings has made the DIAMOND FINISH line the most complete in standard and special styles. A thorough familiarity with the exclusive lubricated styles is especially valuable in boosting today's production and in shaping future plans.

WHITINSVILLE (MASS.)

SPINNING RING CO.

Makers of Spinning and DIAMOND FINISH *Twister Rings since 1873*

World's Largest Ring-Making Plant

Announcing

SELLOGEN A S
SELLOGEN M

All-purpose, powdered wetting agents and detergents for wool...for cotton...for synthetic fibers

● These new, highly efficient products have a wide range of uses. They give equally satisfactory results with *all* textile fibers. Used with WOOL for rinsing after fulling, scouring and dyeing yarn and piece goods, backwashing and dyeing tops. With COTTON for kier boiling, dyeing, soaping and scouring. With SYNTHETIC FIBERS for dyeing and scouring. These twin products can bring important, time-saving advantages to your business. Samples on application.

SELLOGEN A S
has extreme wetting properties.

SELLOGEN M
combines wetting with high detergency. Resistant to hard and limy waters—extreme cleansing action, excellent sudsing. Can be used in acid or alkaline solutions. Recommended as a penetrator in dyeing, in boiling off.

WOLF BRAND PRODUCTS

JACQUES WOLF & CO.
Chemicals PASSAIC, N. J.

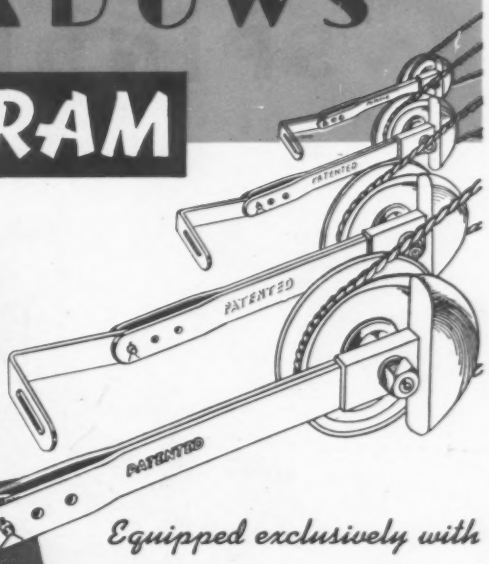
WAREHOUSES: Providence, R. I., Philadelphia, Pa., Utica, N. Y., Chicago, Ill., Greenville, S. C., Chattanooga, Tenn., Knoxville, Tenn., Charlotte, N. C., Milwaukee, Wisc., Columbus, Ga.

M-R-C *and* MEADOWS

for the WAR PROGRAM

MEADOWS

Ball Bearing Tension Pulleys



Equipped exclusively with

M-R-C LUBRI-SEAL BALL BEARINGS

Insuring:

1 - Uniform spindle speed
2 - Uniform twist at all times
3 - No band slippage and no slack yarn
4 - No damp weather, dry weather or Monday morning band trouble
5 - Once every 5,000 hours lubrication

HELPING MORE THAN 900,000 SPINDLES MEET GOVERNMENT SPECIFICATIONS

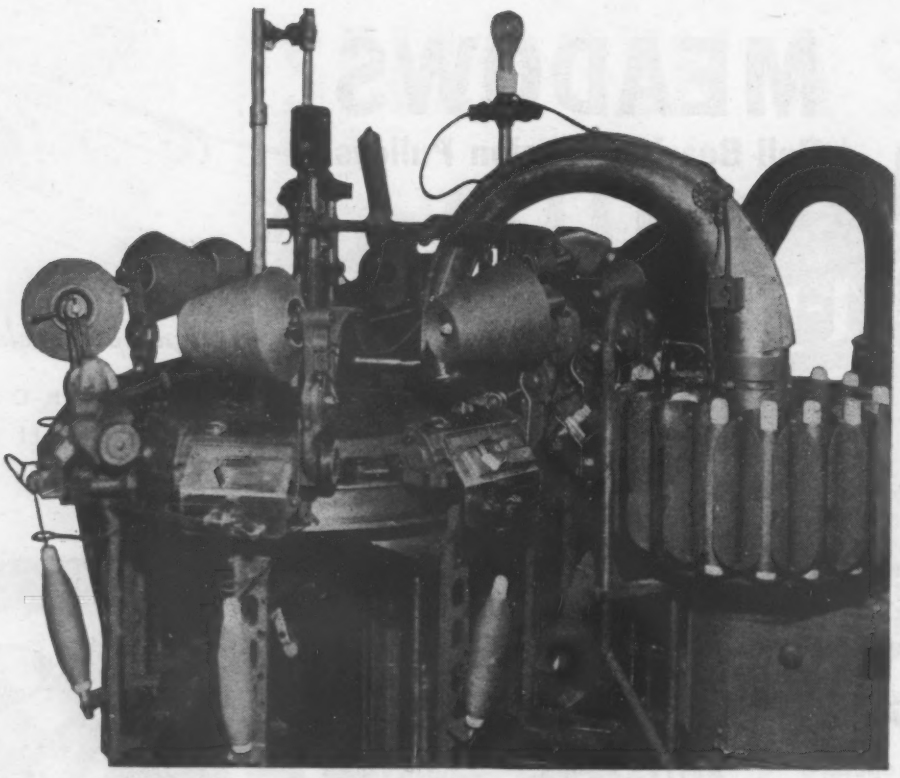
Write for complete information to:
MEADOWS MFG. CO., P. O. Box 4354, Atlanta, Ga.

M-R-C BALL BEARINGS

MARLIN - ROCKWELL CORPORATION

Executive Offices: JAMESTOWN, N. Y.

AUTOMATIC TRAVELLING SPINDLE WINDING



Wind your Knitting Cones on an Automatic Winder

800 to 900 net bobbins per hour

Usually a return can be made of 50% yearly on investment

ABBOTT MACHINE COMPANY

WILTON, N. H.

Southern Representative: L. S. Ligon, Greenville, S. C.

AFTER THE WAR

After the storm of war is over... there will be a rainbow of more cheerful colors breaking over the world which will echo new notes of courage and optimism. When we have won this conflict, the sombre hues and drab garbs of these dimout days will be supplanted by an inevitable reversion to brighter colors.

When peace comes, General's phenomenal war production will be converted to peacetime requirements, releasing unlimited quantities of the finest and most durable dyestuffs known.

GENERAL DYESTUFF CORPORATION

QUALITY DYESTUFFS

JOHNSON BRONZE SLEEVE TYPE BEARINGS

The Mark of
QUALITY

in BEARING BRONZE

There are two very good reasons why QUALITY should be your first consideration when purchasing bronze bars. In the first place the cost of producing a bearing or part is always greater than the cost of the bronze. If you are not sure of your metal, this production time might be spent in vain. The second reason covers the length of service and the degree of performance the bearing delivers. When you specify Johnson UNIVERSAL Bronze you eliminate chance because you get the highest quality bearing bronze on the market.

Johnson UNIVERSAL is the most economical bar bronze available. Every bar is completely machined and entirely usable from end to end. There are no hidden flaws . . . no blow holes . . . no sand inclusions. The range of sizes—over 350 cored and solid—enables you to buy exactly according to your needs.

The next time you need bronze bars . . . call in your local Johnson distributor. Permit him to show you how you can save both time and money by using Johnson UNIVERSAL Bronze. Look for the label on every bar.

Service

Bearing Bronze is a vital part of our nation's Victory effort. Your local Johnson distributor may not have the exact size you need in stock . . . but he will do his best to get it—without delay.

JOHNSON BRONZE
SLEEVE BEARING HEADQUARTERS
530 S. MILL STREET NEW CASTLE, PA.

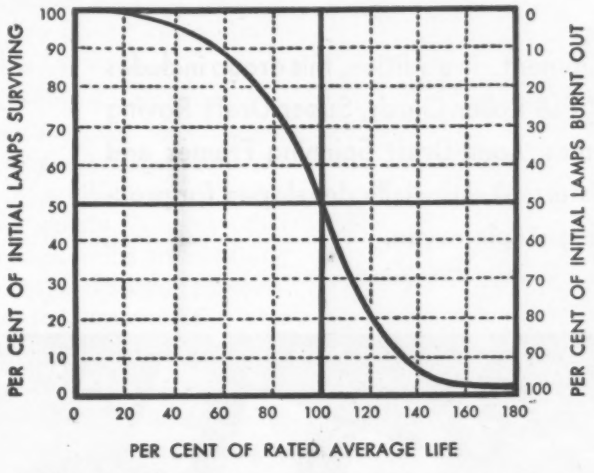
The MOST COMPLETE SLEEVE BEARING SERVICE in the WORLD

Fluorescent operating hints

No. 2 of a series published by SYLVANIA for all users of fluorescent lighting

HOW TO GET FULL LAMP LIFE

Average rated life of good-quality fluorescent lamps is 2500 hours for the 40-watt size — 3000 hours for the 100-watt size. But the life of individual lamps may vary as the chart shows:



And actual operating conditions seldom are as favorable as controlled laboratory tests. Nevertheless, these average rated life figures will help you estimate how many lamps you will normally replace every month. Simply use 2500 or 3000 hours as indicated in this formula:

$$\text{Expected lamp renewals per month} = \frac{\text{No. of lamps} \times \text{average burning hours per month}}{\text{Rated average life of lamps in hours}}$$

If your actual monthly replacements consistently exceed the calculated figure in your own formula, it will pay you to check these five factors, which shorten lamp life:

1. TOO FREQUENT STARTING: Average rated life is based on lamps operating for not less than four hours every time they are started. More frequent starting dissipates the filament coating vital to fluorescent performance — and thus shortens lamp life.

2. DEFECTIVE STARTERS: Starters that are not working properly may cause the lamp to blink off and on, a condition that also shortens lamp life. Sylvania Starters cost only a few cents and should be replaced as necessary to protect your lamp investment.

3. VOLTAGE VARIATIONS: Fluorescent lamps are made to operate within specified *ranges* of voltage — for example, 110-125 volts. Variations within the specified voltage range do not seriously affect a lamp. But at voltages much below the range, starting becomes uncertain, and there is an excessive drain on electrode material — with a resultant toll on lamp life. Above the normal range, there is also a life-shortening effect. In addition, light output also is affected by voltages outside the normal range.

4. LOW TEMPERATURE: Fluorescent lamps are designed to operate most efficiently between 60 and 90 degrees Fahrenheit. If low temperatures are unavoidable, lamps may be protected with enclosed fixtures.

5. EXCESSIVE VIBRATION: This reduces lamp life and can often be prevented or minimized.

For Additional Maintenance Information

Send for this Free Booklet

100,000 already distributed

SYLVANIA ELECTRIC PRODUCTS INC.

"Fluorescent at its Finest"

SALEM, MASSACHUSETTS

FLUORESCENT LAMPS, FIXTURES AND ACCESSORIES, INCANDESCENT LAMPS, RADIO TUBES, CATHODE RAY TUBES, ELECTRONIC DEVICES

AS NEW AS TOMORROW..

but already proven

WHITIN STAPLE RAYON EQUIPMENT

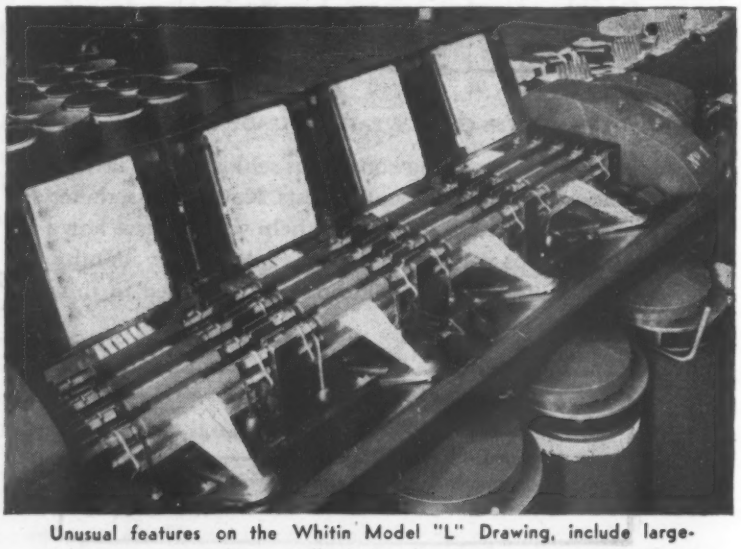
In the critical days ahead, time and production will be of the utmost importance! Time and production lost in testing unproven, untried, newly designed models can never be regained.

"Blueprint" machinery always arouses keen anticipation—and at the proper time is definitely essential. Our own Engineering and Research Departments are busier than ever.

BUT—to cope with the situation at hand, where outmoded and obsolete machinery must be replaced quickly, where production must be stepped up—not lost, we think you will agree that modern, dependable, proven equipment will be most practical.

Fortunately our line of machinery for processing staple rayon was developed just prior to the outbreak of war and has already passed with honors the most severe testing stage—actual mill operation.

Our Model "L" Drawing Frame is an outstanding example of this type of proven equipment. In addition, this group includes 40" Full Roller Cards, Super-Draft Roving Frames, Long-Draft Spinning Frames and Twisters, all especially developed for processing staple rayon.



Unusual features on the Whitin Model "L" Drawing, include large-diameter bottom rolls, specially designed trumpets, extra-sensitive front stop motions, spring weighting on top rolls and adjustable top clearers.

WHITIN MACHINE WORKS

WHITINSVILLE, MASS.

CHARLOTTE, N. C. ATLANTA, GA.

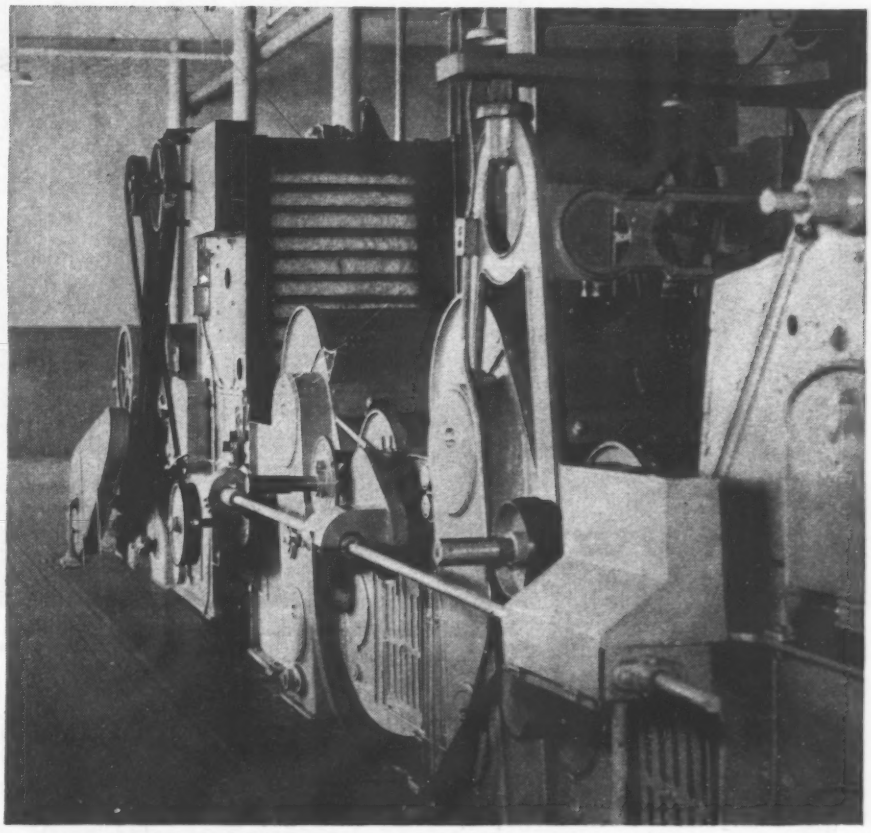
Du Pont "Three Dimensional Seeing"

HELPS SEND PRODUCTION UP 20%... CUTS WORKERS' INJURIES 10%

"Believe it is one of the best investments we have made," writes General Superintendent of textile mill

This textile mill repainted machines with colors scientifically selected to give workers better sight . . . enable them to work faster and more accurately . . . reduce accident hazards. That was Du Pont "Three Dimensional Seeing" at work.

In the following 6 months, production increased 20%, accidents dropped and workers' morale improved in the more pleasant surroundings. The Superintendent reports, "I believe that industrial plants which are not using 'Three Dimensional Seeing' are missing 90% of the benefits of a new paint job."



Light colors on this textile machinery reflect light. Seeing conditions are improved, thus helping machine operators to work more efficiently and speed up production.

What is "Three Dimensional Seeing"? In hundreds of plants it is giving textile workers keener, faster, more accurate vision. "Three Dimensional Seeing" is a new science of color and light. It is a method of repainting dark, dingy machines with scientifically selected colors that *reflect* light . . . with colors that contrast with yarns, threads and fabrics and dangerous moving parts of the machine. In addition, walls, ceilings and floors are painted in colors carefully selected to improve overall seeing conditions and increase efficiency of existing lighting equipment.

Colors and color combinations are scientifically selected by Du Pont paint technicians to fit the individual requirements of each mill. The type of machine, the type and color of fabric, the plant lighting system—all are factors that help determine the paints to be used. Get all the facts about this new science of light and paint that is helping over a thousand plants speed production, cut accident rates and increase workers' morale. Fill in the coupon today.

DU PONT
REG. U. S. PAT. OFF.

THIS COUPON will bring you further information about the new work-speeding development, "Three Dimensional Seeing." Fill it in now . . . check the items that interest you . . . drop it in your "Outgoing" box.

E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Department '4 C Wilmington, Delaware.

I'D LIKE TO SEE:

- ☐ *Your latest booklet, "The Visual Way to Victory through Three Dimensional Seeing."*
- ☐ *The new film, "Salvaging Waste Light for Victory." Tell me how I may arrange for a showing.*
- ☐ *How "Three Dimensional Seeing" can be applied to my problem. Send me a Du Pont Service Engineer.*

NAME_____

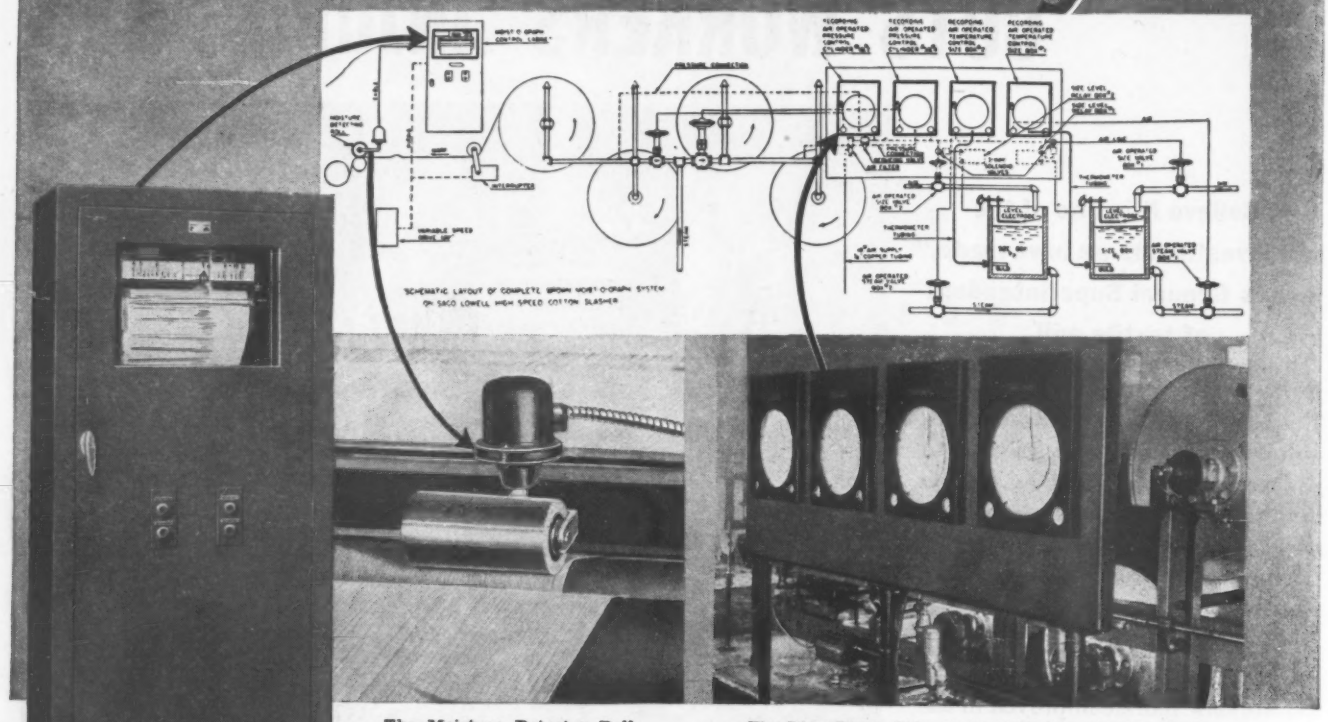
TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ STATE_____

WHAT USERS LIKE - about this Slasher Control System



MOIST-o-GRAPH Recorder Controller in Lint-Proof Cabinet.

The Moisture Detector Roll.

The Live Steam Side of the Cylinders showing Regulating Valves and Pressure-Recording Instruments.

MOIST-o-GRAPH Directly Measures Moisture Content and RECORDS Per Cent Regain

At the Lockwood Company Mills, Waterville, Maine, where the Brown Moist-o-Graph Slasher Speed Control System is installed on a Saco-Lowell Model C Slasher, the following advantages have been noted:

1. Production per machine increases, while costs decrease.
2. Regain in the warp is closely limited by precise control of the yarn speed over the cylinders.
3. A visual, permanent record of the moisture content of every beam from beginning to end.
4. Elimination of damage to the yarn by over-drying, breakdown of the sizing mixture or other fibre damages.
5. More even application of the size gives better penetration. Efficient removal of the surface surplus saves size materials and reduces shedding in the weave room.
6. Better drying removes the danger from mildew and other fungus growth.
7. Definite saving in steam per pound of yarn dried.
8. Better size warps increase weave room efficiency.

Brown MOIST-o-GRAPH operates on the principle that, for every per cent regain, yarn has a corresponding electrical resistance. As the yarn passes over the back press roll—the MOIST-o-GRAPH detecting roller, in direct contact with the yarn, records moisture content continuously in terms of per cent regain.

The Brown MOIST-o-GRAPH is easy to install on cotton and rayon slashers. Write THE BROWN INSTRUMENT COMPANY, 4488 Wayne Avenue, Philadelphia, Pennsylvania, a division of Minneapolis-Honeywell Regulator Company, Minneapolis, Minnesota. Offices in all principal cities. 119 Peter Street, Toronto, Canada — Wadsworth Road, Perivale, Middlesex, England — Nybrokajen 7, Stockholm, Sweden.

BROWN MOIST-O-GRAPH

To Measure and Control is to Economize

Textiles—"on the land and on the sea"

The Marines carry an all-purpose poncho made of waterproof fabric. One side is green for jungle camouflage . . . the other is brown for desert protection.

Protection as a raincape . . . or to keep supplies and equipment dry . . . the needs of our Soldiers of the Sea are varied.

The Marine poncho consists of two thicknesses of coated fabric. Soft and light in weight, it remains flexible in any climate.

The Textile Industry has produced millions of yards of coated fabrics, supplying protection for men as well as equipment and supplies.

Mills making these fabrics depend on Butterworth Machines at every step in the Wet End of Textile Finishing . . . bleaching, boiling-out, drying, calendering, dyeing.

Butterworth Engineers freely offer their cooperation to mills seeking to achieve increased productive efficiency . . . or to repair or replace worn-out or obsolete equipment.

All of our facilities not required for Ordnance production are available to help you solve your present finishing problems, and aid you in your post war plans. Let us serve you now.

H. W. BUTTERWORTH & SONS CO.
Phila. 25, Pa. Serving Textile Industry since 1820
Offices in Providence, R. I. and Charlotte, N.C.
In Canada: W. J. Westaway Co., Hamilton, Ont.

***64%**

of equipment now in use in the wet end of textile finishing cannot operate at a profit in competition with modern machines.

*Proved by Research

Butterworth

PRODUCING GUN MOUNTS FOR THE UNITED STATES ARMY

Brevity is the Soul of Wit—

WHEN IT COMES TO

Conserving Paper

URE IT'S EASIER to let your dictation roll along. Sure it's easier to write long copy. Sure it's easier to do all the good, pleasant things of normal peacetime business when paper is like water, something you can pretty well use as you will.

But now, when the increasing paper needs of the armed services daily decrease the national supply of paper—when paper is a true war essential—that's a different story.

All of us in business must watch every piece of paper or paper board we use. We must judge its use in terms of absolute necessity. We must not use a single piece, a single inch, of paper which thriftier writing or printing or packaging can possibly save.

For multiplied on a national scale, that particular piece or inch of paper or paper board becomes the tonnage needed by our service forces to ship precious food and ammunition and weapons and medical supplies and blood plasma to our troops overseas.

If there's no Paper Conservation Committee in your organization or in your community, why not get one going today?

This advertisement prepared under the auspices of the War Advertising Council in co-operation with the Office of War Information and the War Production Board.

USE LESS PAPER BECAUSE

It takes 25 tons of blueprint paper to make a battleship.

700,000 different kinds of items are shipped to the Army—and they're paper-wrapped or boxed.

"K" ration containers, shipped from the Eastern Seaboard alone, take 662 pounds of paper a month.

Each Signal Corps radio set takes 7 pounds of kraft paper, 3 pounds of book paper.

Each propelling charge for 155-millimeter shell takes 3/5 pound of paper.

USE LESS PAPER THESE WAYS

Review all printed forms periodically for essentiality; consolidation; elimination of waste space; standardization of sizes, weights, color, grade; elimination of color where possible.

Eliminate slack fills, thus effecting the economies of a smaller package.

Use 8½x5½-inch letterheads for short letters; inclose them in small envelopes.

Adjust the number of units per case to the maximum practical.

Use and re-use carbon paper consistently.

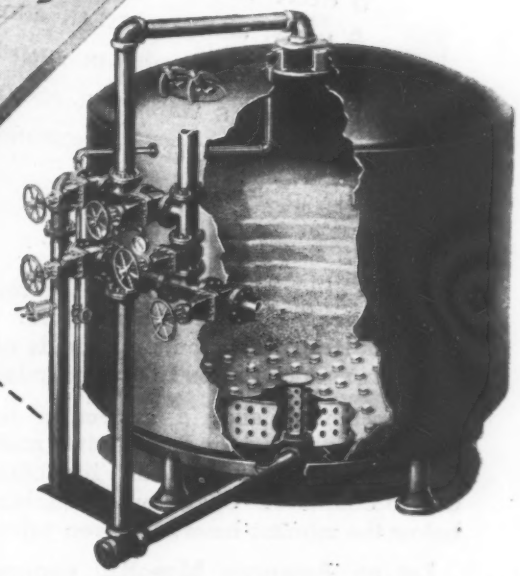
Conversely, reduce the number of units to utilize lighter carton board when such reduction will result in less tonnage over-all. Be sure that the openings are on the smallest dimension of the shipping container, so that the flaps will have the smallest area possible.

LET'S ALL USE LESS PAPER

Space for this advertisement contributed by COTTON

DESIGN

for post-war progress



Graver Water Filters, either vertical or horizontal, can be built in any capacity to meet your requirements. Prominent among the many features is the under-drain collecting and distributing system which insures uniform pressure over the entire area, resulting in equal collection from, and uniform distribution to, the entire filter bed.

ASIDE from winning the war, laying plans to meet the demands of a peacetime world is one of industry's most important activities today.

Here at Graver we are working closely with the management and engineering staffs of many of America's leading industries. Our big job is to supply essential equipment to those producing munitions of war, and we're working at it night and day. But our drawing boards also reveal plans for water conditioning equipment of all types to meet the requirements of peacetime. This equipment will not be built until Victory is won. Yet the planning will be completed. And when the last shot has been fired, there need be no delay in getting into production.

It's none too early to start planning, and our engineers will gladly cooperate with you. This service does not obligate you in any way and it may save you valuable time when the day arrives for rapid conversion to peacetime production.

GRAVER

WATER CONDITIONING EQUIPMENT

GRAVER TANK & MFG. CO., INC.

4809-77 Tod Ave., East Chicago, Ind.

NEW YORK CATASAUQUA, PA. CHICAGO TULSA

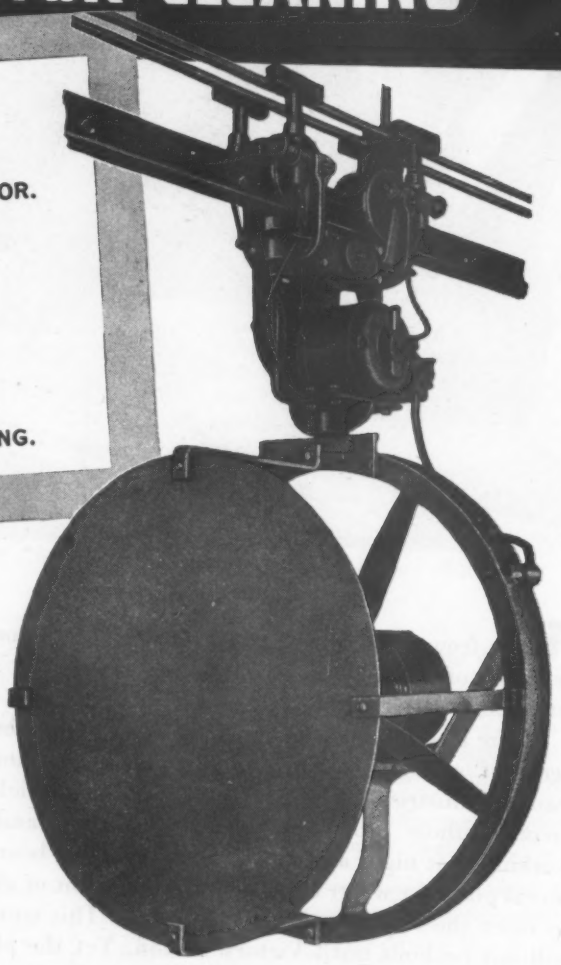
Graver designs, builds and installs all types of water conditioning equipment including:

Water Filters • Oil Removal Filters • Iron Removal Filters
Hot Process Water Softeners • Zeolite Water Softeners
Taste and Odor Removal Filters • Reactivators

48-46W

9 ADVANTAGES OF AUTOMATIC MONITOR CLEANING

1 PREVENTS ACCUMULATION OF LINT.
2 ELIMINATES COST OF HAND CLEANING.
3 IMPROVES QUALITY OF YARN MADE BENEATH MONITOR.
4 ELIMINATES ACCIDENTS WITH AIR HOSE OR BROOM.
5 HELPS MAINTAIN EVEN HUMIDITY.
6 KEEPS MONITOR CLEAN AND DRY.
7 AIDS VENTILATION IN SUMMER.
8 PREVENTS WARM AIR POCKET IN WINTER.
9 ASSURES FULL PRODUCTION DURING CLEANING.



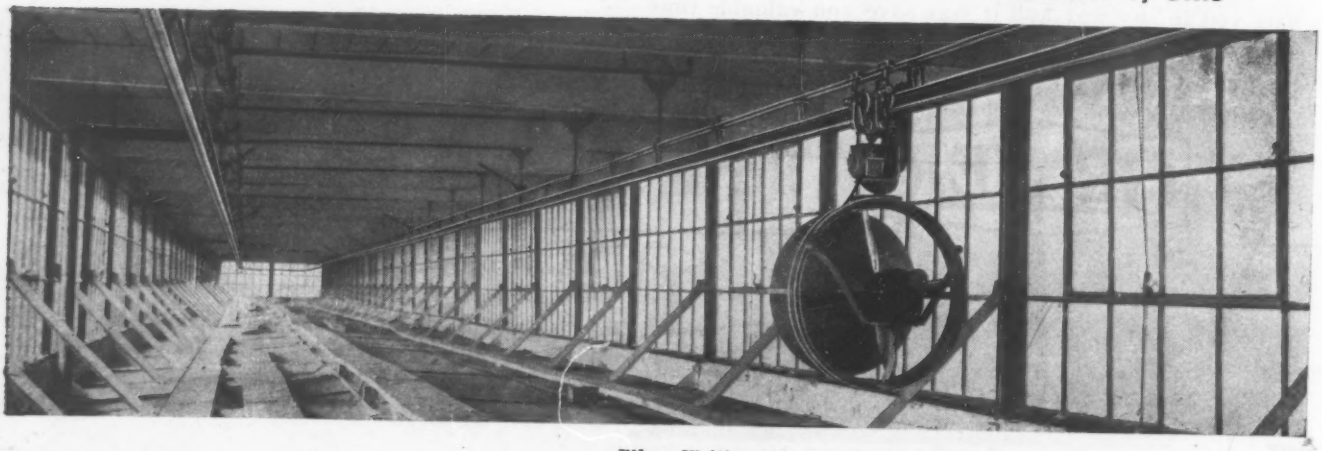
A blast of air distributed in all directions from an American Monitor Cleaner unit at regular intervals keeps the monitor in mills of this particular construction free from accumulation of lint.

Operation of such a system in textile mills shows annual savings in cleaning cost with incidental elimination of hazard. Production increases due to continuous operation of machines directly below the monitor have also been reported.

Let an American MonoRail engineer explain further details. Write for copy of book describing Controlled Cyclonic Cleaning.

THE AMERICAN MONORAIL CO.

13106 Athens Avenue ★ Cleveland 7, Ohio



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COTTON
SERVING THE
Textile Industries

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2. No grooving — less ends down
3. Unaffected by temperature changes
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Famous DAYCO Synthetic Rubber Products Since 1934
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Roll Coverings by **Dayton Rubber**
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SHORTS and REMNANTS

This Is Where I Came In

"On the economic side the war left Germany almost a desert. About two-thirds of the total population had disappeared; the misery of those that survived was piteous in the extreme. Five-sixths of the villages in the empire had been destroyed. We read of one in the Palatinate that had been plundered eight times . . . Education had almost disappeared; and the moral decline of the people was seen in the coarsening of manners and the growth of superstition . . ."

These words were written not as of 1944, but as of 1648, at the end of the Thirty Years War—the worst and last of the religious wars between Catholics and Protestants.

◆

Test for Yarn Strength

"Will you please send us COTTON for November 1940 and February 1943? We are interested in articles in these magazines pertaining to tests for single end strength."

MORTON COLE
Continental Mills
Lewiston, Me.

(The articles referred to above were "Theory of Yarn Skein Strength" in November 1940 and "Standard Single Strand Break", which was in the January 1943 and February 1943 issues.)

◆

Vinyl Resins

"Will you please send the copy of COTTON containing articles on Vinyl Resins by Leonard Shapiro?"

DR. D. McINTOSH
Shawinigan Chemicals, Ltd.
Shawinigan Falls, Que., Canada

(Requests for these articles were so numerous our supply of issues was exhausted, but reprints of the articles were made for Warwick Chemical Co., West Warwick, R. I., and additional copies can be secured from them.)

◆

Avondale Mills Maintenance

"We are desirous of obtaining a reprint of an article entitled 'Avondale Mills, Alabama: Maintenance' which appeared in COTTON in February 1942 . . ."

MARJORIE R. BENSON
Laboratory Division
Boston, Mass.

◆

Follows Up Advertisements

". . . We are asking for each of the booklets because we have read the descriptions with interest and believe that all of this information will be very helpful to us. . . . The writer has personally started following up all advertisements which he believes to have merit in connection with the work being done in this plant . . ."

C. N. WALLACE, JR.
Victor Monaghan Company
Greenville, S. C.

◆

Requests for Advertisers' Literature Come from the Four Corners of the Globe

A recent compilation of requests for literature of our advertisers, as listed on "Helpful Booklets Free" page each month, shows over 2,500 requests for booklets in 1943. These came from all classes of mills—cotton, rayon, wool, dyeing and finishing, knitting. Requests were from officials, superintendents, department heads, chemists, knitters, fixers and almost every classification in the industry. They came from Maine to Texas and, in spite of decreased foreign mailings, from many foreign countries. Copies of typical requests are available in reprint form to advertisers and prospects who may be interested.

◆

Help! Help!

". . . Would it be possible to get some kind of book on winding and warping, describing in detail maintenance, repairs, adjustments, etc. . . ."

HENRY MARCHESSEAULT
Grosvenor Dale Co.,
Putnam, Conn.

"I would like to see more on how to fix Draper and Hopedale looms. What we need is more and better fixers, and that goes for me too. . . ."

JESSE McDONALD
Greensboro, N. C.

"Can you give us the approximate cost of maintenance, repairs and supplies per year on Draper looms? . . ."

W. V. BOYD
V-P & Gen. Mgr.,
Canadian Cottons, Ltd.,
Montreal, Canada.

"We are interested in obtaining information concerning the effect of humidity and temperature upon the strength of cotton fiber, yarn and fabrics. . . ."

KURT VALNER
Talon, Inc.,
New York, N. Y.

(Such inquiries as the above are usually directed to machinery manufacturers who are able to furnish further literature and information of assistance to our readers. We doubt that even Draper is very sure on their average maintenance costs per loom per year, with the variables of age, speed, hours run, etc., but they have some figures. If American Moistening, Bahnson and Parks-Cramer don't have the information on humidity and temperature, it would certainly be a tough one for anyone else to answer.)

◆

"Loom Fixing"

". . . Recently I have been reading a series of articles on loom fixing by Mr. Hawkins and I am wondering if you have a set of these in printed form that I might secure".

C. W. HOWELL
Erwin, N. C.

Management Information

". . . would appreciate your giving us the New York address of Elliott Service Co., Inc., whose 'Management Information' you quote frequently in COTTON."

YATES SMITH
Ass't. Treas., The Florence Mills
Forest City, N. C.

(The address is: 219 East 44th Street, New York 17, N. Y.)

◆

Booklets Go On

"We would appreciate your sending us the pamphlets which we have enumerated."

B. PAUL LYMAN
Amoskeag Fabrics, Inc.
Manchester, N. H.

(Requests such as the above for literature listed by our advertisers each month under "Helpful Booklets Free" are received daily. While supplies of many such booklets are exhausted today, new ones are being constantly added by advertisers who are supplying helpful operating information. Both advertisers and readers find this an advantageous service.)

OUR GIRLS NO 4

Selling technical equipment like Fade-Ometers, stainless dyehouse supplies, etc., would seem to be a field for men only, but Mrs. G. G. Slaughter, Slaughter Machinery Co., Charlotte, N. C., apparently does not believe it. With the passing of her husband, "Gibb", well known throughout the Southern field, and with two sons in the Armed Forces, she has

taken to the road to represent such concerns as Atlas Electric Devices Co.; S. Blickman, Inc.; Cidega, Inc.; and Macbeth Daylighting Corp. The sons: Frederick, a pharmacist's mate at Great Lakes, Ill.; and Edwin, a flying instructor at Orangeburg, S. C.

How's Your 'Cost of Living'?

The "cost of living" of industrial plants, like the cost of living of individual families, has been on the up and up for several years—since before the war.

Your labor costs are higher; taxes are higher; raw materials are higher; maintenance and operating materials and supplies cost more. Almost everything you buy and use in connection with your manufacturing business has increased sharply in price.

Except electric power. Electric rates haven't gone up. They didn't go up before the war and they haven't gone up since the war. On the contrary, most of our industrial customers, because of longer hours of operation and higher load factors, are earning a lower rate per kilowatt hour than they have ever had in the past.

Low electric rates are an advantage of importance to every manufacturer. They have a meaning for the future as well as for the present.

GEORGIA POWER COMPANY

A Citizen Wherever We Serve

COTTON
SERVING THE
Textile Industries

Vol. 108 March 1944 No. 3

Ruinous Prosperity

EVERY WEEK the product of the labor of some 20 million persons is shipped out of the United States to be destroyed. This, according to some of our very highest officials, is causing widespread prosperity. Each week we pay the people who produce these war goods about a billion and a half dollars, and many of our most exalted politicians are referring to this money as a national asset, instead of the total loss which it is.

If any important public figure had suggested 10 years ago that the best way to end the depression and produce general prosperity was to put 20 million people to work producing goods to be destroyed, he would have been considered crazy. It is true that some of the crackpot economists of the early New Deal era did advocate government spending of 30 to 50 billion dollars a year as the proper prescription for prosperity, but nobody ever suggested that the products of such expenditure should be destroyed. Those plans for squandering ourselves into prosperity, by the expenditure of vast sums of money to be borrowed by the Government (or as some experts proposed, to be merely printed by the Government), were generally dismissed as the casual ravings of very gooofy and impractical people.

Yet, today, the government is spending far more than was ever suggested by the craziest proponent of prosperity through squandering, and practically all of the things that the money is being spent for are going to be destroyed. Where so many people get the idea that this is the road to prosperity is rather mystifying. Certainly, there are plenty of people who are neither crazy nor irresponsible who seem to be thoroughly convinced that the country is now in a highly prosperous condition. The attitude of such people was aptly expressed in some remarks made before the recent conference of mayors in Chicago by Speaker of the House of Representatives Sam Rayburn, who was quoted in the press as follows:

"If we can be prosperous in wartime, we can be prosperous in peacetime. If we can employ our people to forge the weapons of war, we can employ them to make the instruments of peace. If our national income can be higher than ever in time of war, it can be high in time of peace. That is what the people will expect of us—you and me."

Because Mr. Rayburn is a prominent and distinguished public figure, because he is a gentleman of conservative tendencies who came from a small Texas town where people are not given to tossing money around lightly, and because his remarks appear to mirror the beliefs of millions of less eminent persons, this statement is worthy of serious examination. Mr. Rayburn and millions of others seem to believe implicitly that we *are* prosperous, that our national income is *really* higher than it has ever been before, and that somehow we are doing something very desirable for the national economy, instead of doing our best to wreck it.

THERE IS something terribly insidious about inflation, because in the beginning it is never recognized as inflation, but always as "improved business", "higher wages", "better profits" and "increased employment". It is only in the advanced stages, after it is too late to take any remedial steps, that inflation is generally recognized for what it is. When it first gets started, nearly everybody wants to help it along, because it seems that we are having "better times". Only professional economists or incurable realists are likely to recognize inflation and oppose it. Practically everybody else is in favor of it, although of course nobody is in favor of its effects.

There are probably no people more utterly impervious to reason than those who think they are making money. They don't have to actually make any money, but merely to *think* they are making it. Of course, sooner or later, the man who only thinks he is making money wakes up from his dream and finds that he is bankrupt, but while the dream lasts it is wonderful.

This whole country is now going through such a period. What should be an economic nightmare is a beautiful dream of unlimited prosperity. We had another one of these dreams during and after the last World War. We had developed a degree of "prosperity" that brought envious investigators from all over the world to find out how we did it. Those who found out realized that it was nothing but eld-fashioned inflation—like the Mississippi Bubble, or the Tulip Craze—and that any country can have that kind of "prosperity" any time it wants it, if it has considerable national wealth which it wants to distribute quickly by inflation.

While so many people are thinking of this orgy of inflation as a period of prosperity, we do know there are many who fully realize that the current "prosperity" is strictly phoney, who have given much serious thought to the question of why we can produce so

enormously for war and yet seem unable to produce equally for the needs of peace. These people have thought much about the problem of continued employment and high production for genuine prosperity after the war. A great many newspaper editors have been mulling over this thought and have seemed to find no answer to the question of why high peacetime production levels have always been so far below those of wartime.

The principal reason for the difference between our peacetime production and our expanded wartime production is that we are now paying exorbitant wages in rapidly depreciating money to tempt people to produce the great volume of goods required for war. But for the fact that rigid government controls have prevented this depreciating money from finding its true level of value, we would have had price rises which would have wiped out the imaginary "prosperity" that we are supposed to be enjoying.

The mere fact that the government prints money does not make it valuable. The "good" money in the country is that which represents actual goods and solid values. When the government puts out money which does not represent anything tangible, this money dilutes the "good" money. It is exactly the process by which an individual's promissory notes depreciate in value when he contracts more obligations than he has assets. If a man whose net worth is exactly $1000 assumes obligations amounting to $1000, these can be liquidated at par. If, after he has obligated himself for $1000, he persuades somebody to accept his note for another $500, that note is worth exactly nothing; but when, in a settlement of his affairs, the bogus note is tossed in with the good ones, it depreciates the good ones.

The economic problems of a government are more intricate, but basically no different from those of the individual. When the government issues more obligations than its reasonably expected income can liquidate, the value of those obligations will depreciate, and the value of its money will likewise depreciate. We have managed to cover up the depreciation of our money by rationing and price controls, but the depreciation is there just the same. If we attempted to achieve this kind of "prosperity" in normal peacetimes, the depreciation would immediately make itself known by drastically higher prices. Even the relatively small amount of inflation created by government spending from 1933 to 1940 raised prices considerably, and conservative people all over the country were vigorously opposed to the continuance of unsound government spending on the grounds that it would lead to ultimate bankruptcy. Now that we have tremendously accelerated the rate of government spending, there is so much depreciated money in circulation that many people who should know better seem to think we are prosperous.

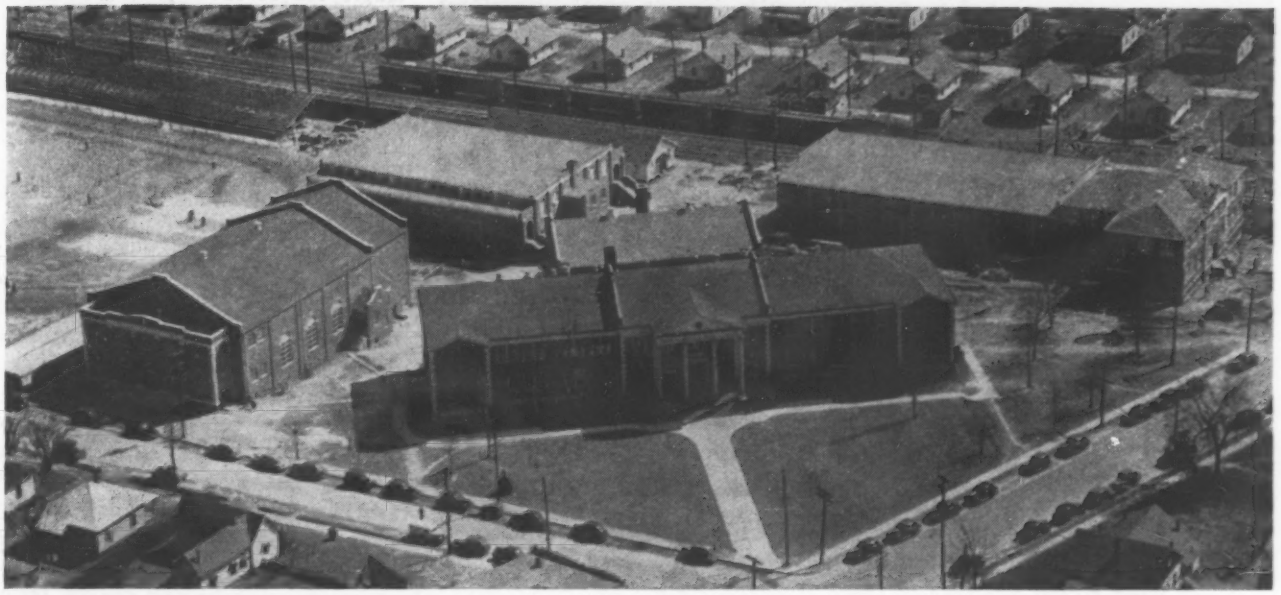
A QUESTION that many persons are asking is how we can go about keeping up our production pace after the war. Obviously, we cannot do it by continuing to pay people a dollar for doing 50 cents' worth of work, or maybe 25 cents' worth. Any permanent economy has got to be built on solid values. A producer's wage will again have to be determined by what buyers are willing to pay for the product of his labor, and the profits of business will again have to be determined by competitive conditions. At the present time the government has thrown all such sordid economic considerations in the ash can. It hires a man at twice what he is worth and then borrows some of his wages back from him so that it can pay him three times as much as he is worth. The man, meanwhile, is given some bonds in exchange for the borrowings, but he is not told that when the time comes for paying off the bonds, he is the fellow who will do the paying.

In all this economic nightmare, there have been few public men with large followings who have either understood the implications of this inflation or have had the courage to speak their convictions. Mr. Wendell Willkie, so far, seems to be the only outstanding person who has been willing to talk sense instead of nonsense on the subject; and since Mr. Willkie evidently realizes that the average citizen hasn't the dimmest idea of what inflation is, he based his argument on the necessity of paying for the war as we go along instead of paying for it with money borrowed from people who will later have to pay themselves back through taxation. Mr. Willkie very realistically suggested that the way to pay for a war is to pay for it and that the way to get money is to levy taxes. He recommended about 16 billion dollars more in taxation than Congress seems now willing to levy.

Some Senators and Congressmen suggested that Mr. Willkie come to Washington and explain to them where to find any such staggering amount of money. It will not be necessary for Mr. Willkie to go to Washington for that purpose. He could tell Congress where to find it in a 10-word telegram boiled down to five words, "Impose an excess income tax". Congress knows exactly where to find this money but is not even thinking of looking for it with an election coming up.

There is hardly a textile executive in the country who does not know personally of a number of cases where inexperienced mill hands are getting from $100 to $175 a week in shipyards, ordnance plants and other government operated or government sponsored places of employment. There is where the government can get back the money that never should have been paid out in the first place. That is the truly inflationary money, the money that quickly goes into the channels of trade to break down the price structure. The only way to get that money is to tax it. Those persons who are receiving the exorbitant wages are evidently reluctant to buy bonds, since in each bond drive there has been a very unsatisfactory response on the part of the small-bond buyers.

Until the government is willing to adopt a realistic tax program to get back the excess wages, which never should have been paid, our inflationary problem is going to grow worse. The government has already taken reasonably prudent action to get back the excess profits that never should have been paid to industry, but legislators being what they are—and very sensitive to the opinions of voters—nothing has been done and probably nothing will be done to recapture this "windfall money" that is being handed out so generously to millions of working people—to those who will suffer most when the bubble bursts.



Parker High School: main building, auditorium, gymnasium, vocational building and athletic field

Parker School District Leads In Textile Education

By Loui Greet
Vocational Director

THIS IS the first of two articles presenting the story of the Parker School District, Greenville, S. C., and particularly the story of the Parker High School. Opened in 1924, Parker High School has received national recognition for the job it has done and is doing in the field of industrial and vocational education. In the present installment, Mr. Greet covers the history of the district, the types of training being given and the methods being used.

The concluding article, to appear in the April issue of "Cotton", will deal with adult training—the "up-grading" courses given to employees of the textile plants surrounding Greenville who are sent to Parker High School for the purpose of broadening their outlook and to make them better fitted for promotion to bigger jobs.

IN ORDER to give the reader a better understanding of the whole picture of textile education in the Parker District, it will be necessary to build up a little background of information.

The following textile plants are located within the bounds of the district: Mills Mill No. 1, Southern Franklin Process Co., Dunean Mills, Brandon Duck Mill, Brandon Mill, Woodside Mill, Southern Weaving Co., Monaghan Plant of Victor-Monaghan Co., F. W. Poe Manufacturing Co., American Spinning Plant of Florence Mills, Piedmont Plush Mill, Brooks Bros., Southern Pile Fabric Co., Judson Mill, and Union Bleachery. Nine of these plants have their own villages. In addition, there are four suburban sections and one farming community.

The boundary lines of the district form a semi-circle around the city of Greenville. With a population of 35,000 the district has its own water and sewer systems, fire and police protection, more than forty churches, one high school, fourteen elementary schools for white children and three for negroes, who, incidentally, constitute less than 5 per cent of the population.

Prior to the formation of the district in 1923, each of the fourteen communities had its own little elementary school, which was supported by state and county tax levies, supplemented by mill donations. There was no high school, for there was very little demand for secondary education. Most of the children stopped school when they had finished the elementary grades. The few who continued their education did so at the Greenville High School, an arrangement that was not entirely satisfactory. One of the prime reasons for organizing the new school district was to establish a high school that would appeal to the students by providing desired training in textile and other vocational work.

Parker High School opened in 1924. It is located near the center of the district on a tract of land of approximately 11 acres. It is within easy walking distance for many of the pupils. The remainder are served by public service trolleys and one school bus. Starting with one building housing 45 pupils, the school has grown into an extensive plant which accommodates 1400 pupils and many adults.

Our vocational education program is built around a philosophy of education which recognizes that

Photos by Coxe Studios, Greenville, S. C.

High school students in cloth analysis and design class

the individual who is going to earn his living in a store or factory has as much right to receive training for this work, at public expense, as has the lawyer, doctor, or school teacher.

In conformity with this philosophy, we have tried to determine the best types of training for our community, taking into consideration: skilled jobs available, feasibility of school training for those jobs, and whether or not our people want to work at those jobs. We have found that the fields best fitted to our needs in the order of their importance, are: textiles, machine shop practice, drafting, automobile appearance maintenance, cosmetology, commercial work and welding. We found enough interest in these fields to justify the establishing of shops in which they are taught.

Where it is not feasible to establish shops because of the expense involved, because of a limited number of jobs in that field being available, or because a limited number of people desire to learn that occupation, we attempt to do the training on a part-time cooperative basis. Under this plan, the student comes to school in the morning and works outside at some skilled occupation in the afternoon as a paid employee. While in school the student spends two hours a day studying material related to his field of work. For instance, a boy working in the service department of an automobile dealer, will study the service manuals, etc., relating to the make of car serviced. This year we have some 60 students who are working at 19 different occupations. The businesses and industrial establishments working these boys and girls take a great deal of interest in them and—more often than not—employ them full time as soon as they have completed school. The school furnishes coordinators who visit the students on their jobs, consult with their bosses, and conduct the related study periods while they are in the school.

The vocational department utilizes the experience of persons from the fields in which we do training through the use of advisory committees. These committees meet periodically, or at call, and we report to them on what we are doing and ask their advice on anything new which we may have in mind. The help we get from them is invaluable in enabling us to "keep our feet on the ground". They have always been very frank in their appraisal of our courses, and have not hesitated to tell us whether or not they think what we propose, or what we are doing, will work.

Another aid in keeping our vocational courses practical and up-to-date is the quality of instruction given the students or learners. All our teachers were chosen for their occupational competency. They come to us direct from industry and must have had years of successful experience doing the things they are to teach. And they do not lose touch with industry, for they are in constant communication with the employers of their product-trained students. Last summer all of our textile teachers worked in the plants in the district so as to bring themselves "up-to-now". Only two of our twelve teachers are college graduates, but they are all competent instructors and high class Christian gentlemen and gentlewomen.

High school students taking the shop courses spend 15 hours a week for three years in the vocational department. Ten hours a week are spent doing shop work and the other five are given over to the study of related subjects. For instance, a textile student spends 10 hours operating the various machines in the school textile shop and five hours in the study of textile mathematics and cloth analysis and design. Over in the academic department, he gets five hours a week each of English and social science. Also, he will get five hours a week physical education or—as it is now called—physical fitness.

Since Greenville is "the textile center of the South" our main interest is in training persons for this field. Part of two floors of our vocational building is given over to carding, spinning, beaming, quilling, winding, twisting, drawing-in, weaving, designing, and the testing of yarn and fabrics. The equipment consists of: one 40" Whitin card, one 6-delivery Saco-Pettee drawing frame, one 36-spindle Whitin Super-draft roving frame, one 36-spindle Whitin slubber, one 36-spindle Whitin intermediate, and one 36-spindle Whitin speeder. In spinning, we have one 36-spindle Whitin long draft spinning frame and 276 spindles of other types spinning. Other miscellaneous equipment consists of three No. 90 Universal winders, one No. 40 Foster winder, three Atwood skein winders, one U. S. Textile Machinery Co. Jumbo doubler-twister, one Fales & Jenks novelty twister and one beamer for making ply yarn warps.

In weaving, we have: eight XK Model Draper looms, ten K Model Drapers, one X Model Draper, and the following Crompton & Knowles looms: One Model C-4 98" bedspread, one Model C-5 terry towel, one S-5 Supersilk, and 14 Worcester Model 4X1 box looms. For teaching drawing-in, we have 18

frames. Humidity is amply supplied by an American Moistening Co. system.

Our testing equipment is rather sketchy, as we have only a few pieces. We have a combination skein and cloth tester, a twist tester, a skein winder, a roving reel and grain scales. We hope to increase this equipment, since a twelfth grade has been added to our schools and we will have more time to devote to this work.

About half of the equipment listed was purchased at a liberal discount from the manufacturers. The rest was donated by the textile mills of the district. Some of the frames and looms have seen years of service but are still capable of turning out acceptable products. For the information of readers interested in starting a textile school, we would advise about that proportion of new and used equipment—unless the mills for whom students are to be trained all have modern equipment.

This year we have 115 boys and 10 girls in our high school textiles. The boys all come to us 15 hours a week, the girls 10 hours. The difference is that the boys take a full course, whereas the girls only want to learn to operate one or more machines. The boys, for the first two years, spend one-half their time in the weave room and the rest in carding, spinning, etc. The third year they are allowed to specialize either in carding-spinning or weaving. They learn to operate all the machines in our plant and how to make the necessary changes to get the desired products from the machines. We do not teach "fixing", as we feel that the boy is too young to get a job on a section when he leaves school. They are encouraged to attend the evening classes conducted at the school and in the plants when they are in line for "fixing" jobs. This plan has worked very nicely, and most of the section men in our mills have come up in this way.

In their related-subjects classes the students study textile calculations, cloth analysis and design, yarn and fabric testing, industrial history and elementary industrial economics. Last year the senior class designed a drapery pattern, went back to the picker lap and made the yarn for warp and filling. They beamed the warp, put it on the loom and wove several cuts of the cloth. It was woven on a 4x1 box loom and required 16 harnesses. The filling carried three colors and the warp the same three.

Normally, we train 15 or 20 girls a year in drawing-in, but this course has been temporarily discontinued because of a surplus of drawing-in hands—or, to put it another way, lack of drawing-in to be done. This illustrates a policy we have followed from the beginning: when the need for training of a certain type is non-existent, we eliminate that training until our advisory committee tells us to revive it.

This year, for the first time, we are running a part-time course in textiles. Because of the manpower shortage most of our high school students are working, if they are old enough. Many of them work on the second shift in the textile plants of the district—some for the full eight hours and some for four hours. In the latter case, two students will be responsible for a job on the same shift. One works the first half and the other the second. Every now and then, if the students wish, they swap hours so that one will not have to work the same half-shift all the time. Students are given school credit for the work done in the plants, as we have a co-ordinator who follows them up on the job. This co-ordinator is a young lady who earned funds for her high school and college expenses by working in weave rooms of various mills, and she is doing an excellent job.

The district plants like this part-time plan and are cooperating fully in it. It pleases them because they find that the worker who is on the job for only four hours, after a day in school, is more alert and is more regular in attendance than the student who works 8 hours. We like it because these youngsters, as a rule, do better school work than the full-shift students. It also pleases most of the parents, as they realize that full-time school and full-time work is too heavy a schedule for a teen-age child. That the students think well of it is attested by the fact that we have a waiting list for this course.

Recently we made a survey to find out whether or not our high school graduates had any qualities and abilities not possessed by the average person hired by the mills. According to the information obtained from employers, our graduates—in addition to knowing how

(*Continued on page* 116)

Instructor shows student how to use yarn break testing machine

The Use of Time Studies in Textile Mills

By Osbert Hughes

IN THESE days of high production requirements and manpower shortages, the use of time studies is recognized as essential in establishing job assignments in a textile mill. In this article, Mr. Hughes deals with the methods employed in making time studies, the data which should be included and the uses to which the studies can be put. He points out that, when properly utilized and applied, such studies should aid in promoting better relations—and good will—between management and employees . . . . . .

MANY textile mills are installing time study or standards departments, or are enlarging these departments if they are already established. Valuable as these departments are during these days of high production of war goods, they should be doubly so in the highly competitive days that will undoubtedly come when the war is over. The purpose of time study is to scientifically analyze and determine the best method and equipment needed for doing every job in the mill. This is followed by setting up standard values of time required by the average operator to do the job.

From the data compiled by the time study department, the management may precisely determine the labor costs of all operations, establish equitable work loads and piece-work rates, and, if desired, set up a wage incentive system for extra production efforts.

Uses of Data

Many other uses will naturally be made of the data obtained. These may include comparisons between theoretically possible and actual production figures, improved methods of handling and routing the product through the plant, improvements in machinery, equipment, etc. The extent to which these studies can be used will naturally vary in different plants. Properly utilized, time study work should aid in promoting better labor relations—and good-will — between management and employees.

Time study is particularly applicable to most textile mills, due to the large number of short-cycle, repetitive operations involved. The time study department should be in charge of a competent time-study engineer, with a good background of textile manufacturing in addition to his engineering experience. The time study men must have training in the work, as well as some knowledge of statistical methods and textile operations. The overseers and departmental heads should be informed as to the purposes of all time studies to be made and should be sold on the merits and advantages of these studies to management, employees and themselves.

Time studying a doffer and keeping far enough away to prevent interfering with her work . . .

The personality of the time study man is important. He should be friendly with all the employees but should avoid gossiping or being over-intimate with them. He should be able to establish a reputation of being fair-minded and capable, always willing to explain the purpose of his studies to the person being clocked. He will never attempt to correct even obvious bad methods of work, except through the immediate supervisor of the operative concerned, and will *never* make time studies in secret.

Preliminary Survey

The first step in making a time study of any plant, department, or job is to make a preliminary survey of all factors entering into the operations performed. The following is a typical list of the necessary data to be obtained:

1. Location and method of handling of all supplies and materials used.

2. Work performed, including purpose, place, and necessity for the work. These items should be checked with the overseer or supervisor of the department concerned. In practice, it will often happen that the overseer's opinions as to changes, improvements, etc., will be borne out by the findings of the job analysis. By advocating changes and improvements recommended by the overseer, the time study department will be virtually assured of his cooperation throughout all subsequent applications of their findings.

3. List of all machinery and equipment used, including machine speeds, feeds, and gears; net weights of bobbins, spools, beams, and all other yarn packages; and capacity of trucks, storage bins, etc. In this connection, the time

study man should take nothing for granted. He will personally check all speeds, gears, and equipment. He will count spindles, weigh yarn packages, measure shuttles, measure aisle widths, and be prepared to personally guarantee the accuracy of all data compiled under this heading.

4. General working conditions; this will include lighting, heating, ventilation, housekeeping, accessibility of toilets and drinking-fountains, fatigue-causing factors, safety hazards, condition of machines, floors, equipment, etc.

5. Production flow; showing how the product reaches the operator and whether constantly, intermittently, or fluctuatingly, and by what means. The disposal made of the product after processing should be included.

6. Normal waste; kind, and disposition.

7. Floor plan; sketch of work area should be made, unless accurate plant drawings or blueprints are available.

8. Names, titles, and the number of all operatives on job, including normal working hours, shifts worked, and established wage scales.

Changes and Improvements Are Recommended to Management

The facts as ascertained by this preliminary survey will form the basis of discussion with management as to any changes and improvements to be made. The time study department will never of itself attempt to make changes or rectify any bad conditions, but will always make recommendations, backed by necessary figures and other information, to the supervisory official involved. Changes in methods, handling, etc., involving no expense or resulting in a saving in costs, may be made directly to the head of the department concerned. Changes involving the expenditure of money should be taken up with management and should not be advocated unless they show adequate returns on the investment. An exception can be made on changes for improving working conditions, removing hazards, or aiding the health and comfort of the operatives.

Among the changes and improvements which may be recommended are:

The wrong way. Note that the time study man is standing so close to the spinner that he interferes with her work . . . . . .

1. Those which eliminate lost motion and increase production by changing the layout of the machinery, storage bins, etc.

2. Installation of automatic equipment and modernization of existing machinery. As such items will usually involve considerable investment, they should be carefully considered from all angles by the time study engineers before being presented to the management.

3. Improved methods of handling material, such as wagons, conveyors, etc.; re-routing of material to and from each machine, and to, through, and from the department; and re-locating equipment, tools, and supplies.

4. Improvements in working conditions, elimination of unnecessary interruptions and removal of danger hazards.

The preliminary survey will form a guide for the actual time studies to be made. By classifying the product, materials, and operations as to their varying degrees of importance and urgency, the time study department can proceed without fear of missing any items or making any unnecessary studies.

The next step is the actual taking of the time studies. The equipment used consists simply of a clip-board, on which to clip the study sheet, and a stop watch, which may be either a decimal watch or one divided into seconds. The decimal watch is most generally used. This type will facilitate later computations of the readings secured, as the final results are usually shown in decimal minutes or decimal hours. However, a second watch may easily be used and the readings later converted into decimals as required. The second watch is much easier to explain to the operators, who will usually be interested in the time study and will often ask to have the readings shown and explained to them.

The time study man, when clocking a job, will stand as inconspicuously as possible in the background, so as not to distract the attention of the operator, yet close enough not to miss anything that takes place. To avoid possible eyestrain and fatigue, it will be found advisable to hold the watch and clip-board in a straight line with the work being studied.

Breaking Down the Job

The job should be broken down into the most practicable number of readable elements. It will be found that not less than 5 seconds, or more than 20 seconds, will be the best readings on short repetitive cycles. To accurately read cycles of less than 5 seconds duration, it will be found best to combine two or three into one reading. These can be broken down into single readings when the study is computed. Careful study should be made of these small repetitive cycles, and comparisons should be made of each operator's methods, according to the principles of motion analysis. This will often result in recommendations for time economy, by eliminating some motions and consolidating others. Such recommendations will always be made to the supervisor of the department, never to the operators themselves.

Some jobs cannot be time-studied except by continuous readings from beginning to end, each separate element being written down as it occurs. On others, the snap-back method of watch reading may be used.

If possible, the studies should be made by more than one man. This will give judgment of more

TIME STUDY

Dept. Spinning Date 1/4/44 Sheet No. 1 of 1 Sheets

Operator Mary Carroll – #271 Study No. 2

Timed by J.M.R. Start 8:30 AM Stop 11:30 AM Elapsed Time: 3 hours

Remove Empty Roving Bobbin: Speed Rating = 105

6 7 8 7 7 6 7 7 9 7 6 7 6 6 7 9 7 7 7 7 10 11
6 6 7 7 7 7 8 7 8 8 6 7 7 9 7 7 8 7 7 6 7 7
12 7 7 14 7 6 7 7 10 7 7

$\frac{7 \times 105}{100}$ = 7.35 Normal Seconds.

Replace with Full Bobbin: Speed Rating = 105

10 9 9 8 9 9 9 9 8 7 9 11 12 10 9 9 8 9 9 8 7
9 9 9 8 9 9 10 10 11 9 9 8 9 9 9 9 8 10 9 11
11 12 13 9 8 9 9 9 9 9 7 7 9 9

$\frac{9 \times 105}{100}$ = 9.45 Normal Seconds.

Piece-up End: Speed Rating = 105

7 6 5 6 6 5 5 6 7 6 6 8 7 7 4 5 8 9 5 6 6 7 6
6 7 7 6 6 6 7 6 6 8 9 7 6 6 6 6 7 8 7 6 7 7
6 6 6 9 6 6 7 6 6 7 9 6 6

$\frac{6 \times 105}{100}$ = 6.30 Normal Seconds

Strip Empty Roving Bobbin: (Included in Patrolling)

15 % added for fatigue, rest, etc.

$\frac{(7.35 + 9.45 + 6.30) \times 1.15}{60}$ = .444 Standard Minutes.

than one man as to the speed rating of the operators being timed. A tabulation of the job elements should be prepared, so that each man's elements will be read alike.

A Master Element Summary sheet should be prepared, and each study by each time study man should be individually summarized and listed on it. This will enable the time study engineer to make the final selected element times.

It is obvious that an operator's production will vary, both as to different hours during the day, and from day to day. Also, it will usually be found that different operators, although producing substantially the same amount per day, will show varying readings on the different elements of the job. Many operators have a tendency to work at better than their average speed when they know they are under observation. Others, thinking to establish higher piece-work rates, will deliberately show longer readings than normal.

Speed Rating Method

Selecting an *average* operator as representative of a job is not a satisfactory solution of the problem of establishing standards. To level off all studies to a common standard of performance, requiring an equal amount of effort and skill, the *speed rating* method has been developed.

Speed rating is the considered judgment of the time study man as to the speed, effort and skill shown by the operator being studied, compared to established standard performance. It is very important that all the time study men in the plant be trained to estimate the same speed ratings. For this, the Master Element Summary sheet will give a constant check on their estimates.

There are different methods of computing speed rating. For instance, normal average skill-and-effort could be rated at 100, with better-than-average shown as 100 plus, and less-than-average as 100 minus. The equation to convert the actual time to *normal* time would be: (Actual time $\times$ speed rating) $\div$ 100 = Normal Time.

As an example, if a certain element reading is 9 seconds and the speed rating is 100 plus 5, then

$\frac{9 \times 105}{100}$ = 9.45 normal seconds.

Speed ratings may be given to each element of the job, or an overall rating may be applied. Some operators maintain a steady even pace throughout, while others show greater efficiency on some elements of their job than on others. Should the time study man find the speed rating too far on the minus side for any reason, he should discontinue the study and select another operator for observation.

Selection of Standard Time

When sufficient studies of the job have been made, and speed ratings have been calculated and applied, the next step is the selection of the standard time for each element. All widely varying readings will be excluded, unless there are so many of them as to indicate some inherent variation on the job. In this case the job will require further analysis and study.

The standard element time may be selected by one of several methods:

1. The Arithmetical Average; this is the best known and most generally used of all methods for obtaining averages. It is obtained by adding together all the readings and dividing the total by the number of readings used.

2. The Mode; used when a large number of readings have been made, of which the extreme values do not lie far apart. The Mode is the most frequently appearing value.

3. The Median; this is the middle value when the readings are arranged according to size. The Median has many advantages, among which are ease of calcula-

tion and the absence of distortion by unusual values.

4. The Weighted Average; this method is used when it is desired to assign the proper degree of importance to a varying number of items studied. For example, a standard element time based on 50 readings should carry twice as much weight in the final selection as one based on 25 readings. The weighted average may be found in the following manner: (a) Multiply each standard element time by its number of readings. (b) Add the results, and add the number of readings. (c) Divide the sum of the results by the sum of the number of readings.

An example of a Weighted Average is shown in the accompanying table.

To establish standard element times that will be fair and equitable, allowances must be made to include time lost for several reasons. These will include:

1. Personal needs; obtaining drink of water, visit to the canteen, etc.

2. Fatigue; this may require a later survey of conditions. Time allowance for fatigue on most textile work will run about 5 percent, but may go higher on certain heavy jobs.

3. Unavoidable delays; which will allow for many small delays beyond the operator's control. These will vary widely in different mills and under different operating conditions. An important function of the supervisor of the department is to keep these delays down to a minimum.

The foregoing allowances are added to the *normal seconds* already determined, and the results are the final calculations required to set up the element time standards. For example, if we decide on 15 percent allowance, and have a time of 9.45 Normal Seconds, the equation will be $(9.45 \times 1.15) \div 60 = .181$ standard minutes.

The Master Summary Sheet

The standard element time finally selected, for all elements included in the job, should be posted to a Master Summary sheet. This sheet should also carry all the specifications for the job and any other pertinent data. Care should be taken that nothing is omitted from this sheet and that all allowances for delays, interference due to cleaning, changing, inspecting, etc., are included.

WEIGHTED AVERAGE OF TIME STUDIES

Study No.	Time in Seconds		Number of Readings		Totals
1	9.40	x	20	=	188.0
2	10.07	x	60	=	604.2
3	9.65	x	42	=	405.3
4	9.80	x	48	=	470.4
			170		1667.9

Weighted Average = 1667.9 ÷ 170 = 9.81

The Master Summary will then be available to management for use as it sees fit, for time study is only the beginning, not the end of improvement activity. It is primarily a fact finding operation, the scientific investigation which must precede action. The action to be taken by management, as a result of the information obtained, is another story—one that requires careful consideration.

It may be found advisable, for instance, to revise piece rates and bonuses; to transfer workers from one department to another; to increase supervision in certain departments, decrease it in others. It may be found that one overseer is driving his workers too hard, not making adequate allowance for fatigue or attention to personal needs; that another is permitting slackness. It may be found that changes which one overseer has advocated for some time are impractical, while another's are urgently needed.

While these details are important, of more importance is recognition that the mere finding of facts does not constitute justification for time studies. Such justification comes from the uses to which the studies are put. The decision as to what those uses will be is not the responsibility of the time study engineer, except in an advisory capacity. That responsibility belongs to management, and changes in job assignments call for real executive ability.

MASTER ELEMENT SUMMARY

DEPARTMENT: Spinning DATE: January 11,1944.

OPERATION: To Creel One Bobbin of Roving.

Creeling on 216 spindle frames. Front roll = 160 rpm.

Yarn No. 7.60s/1 — Mix No.24. Net wt. roving bbn. = 1.4 lb.

Net weight per bobbin = .37 lb. Doffs per day = 2.67 doffs.

Hanks per doff = 2.83 hanks. Hanks per day = 7.57 hanks.

Elements included: Remove empty roving bobbin.
Replace with full bobbin.
Piece-up end.

(Stripping empty roving bobbin is included in the "Patrolling Master Element Summary")

Element	Study by	Study No.	Standard Minutes	Selected Standard Minutes
Creeling	J.M.R.	1	.434	
"	H.B.S.	3	.456	
"	H.R.S.	4	.439	.444 (Average)
"	T.P.F.	7	.440	
"	J.M.R.	2	.444	

Freedoms in Industry

By W. M. McLaurine

Secretary-Treasurer, American Cotton Manufacturers Association

IN THE evolution of social and economic life, certain changes must take place. Our society has changed from the simple individual activity of persons into a form of corporate structure. We need only to think for a moment about chain stores, newspapers, banks, large industries, public utilities and, finally, about the great industrial farms of wheat and corn and cotton.

Life, with its simplicity and individuality, has gradually drifted under the influences of these great corporate structures, which have finally developed a psychology and a philosophy which too often conflict with the primal thinking of earlier life. Since the new psychology and philosophy is of comparatively recent origin, and since there lingers in the minds of many people the traditions of the past, the conflict is regarded as evil, and plans for fighting the new and returning to the old are constantly in the making.

The average individual, who traditionally has regarded himself as free in his rights and a contributing member of society, now feels, too often, that he has been caught up by some whirling force of circumstances over which he has no control and, therefore, has been deprived of his freedoms. For this reason, with his doubts and fears, he begins to organize himself and his fellows into associations and groups so that he may have strength to combat and control these forces which he considers unfriendly and inimical to himself.

The results obtained by these associations, clubs, federations, or whatever form they may assume, are often disastrous to society and to the individuals who compose them. They may begin with high and holy motives of the most appealing kind. However, unless unusual intelligence directs their activities, they will ultimately degenerate into selfish groups. If and

Mr. McLaurine

when such conditions obtain, the remedy becomes worse than the disease.

The group, too often, becomes unaware that each member has an individual claim to the development of its mass power. The group is largely an unthinking group of followers who gradually allow themselves to be exploited by some selfish leader to whom each member must submit or be ostracized from the group. This statement is made because in most industrial or labor groups the principles which guide are "all or nothing". They are closed organizations whose acts exploit their own people and punish those who do not belong or who in any way thwart their ambitions.

The foundation of democracy, the basis for our freedoms, is faith in the capacities of human nature—faith in human intelligence. This principle predicates freedom of the individual. When the thinking and acting rests on a belief that intelligence is confined to a superior few, who because of supposedly inherent natural gifts are endowed with the right to control the conduct of others, laying down principles and rules and directing the ways in which they can be carried out, that group has fallen under autocratic leadership and an authoritarian scheme of social action.

We are fighting to save our nation from such a philosophy. We are fighting a world war to set all nations free from dictators—yet, here in America, we find groups without will or wisdom presided over by the most exacting dictators.

The title, "Freedoms in Industry", carries with it a two-fold significance—freedom on the part of employer and freedom on the part of employee. There have been mistakes in management just as there have been mistakes in labor attitudes, but in the evolution of intelligence and social consciousness, these faults have been gradually disappearing.

The progress of America has been due in large measure to the elasticity, versatility and intelligence of the average man—his freedom of decision and action. In this new world of groups and associations, man must not lose his inalienable right to decide and to act in his own best interest. There is not only a responsibility for each person within a group to discharge, there is an inter-group relationship of the most vital significance. Men and machines, groups and organizations must not bury or smother these relationships.

Every man is ultimately the creator of his own destiny. In the dark and difficult reconstruction days ahead, shifts in thinking and acting will be mandatory and rapid. Every person and every industry must keep free to act in the most intelligent manner.

We must not fight to free the world from dictatorships and end up with our own nation under a dictator and our own personal lives guided by some remote control which deprives us of individual freedoms.

Every man in the nation must carefully consider his own destiny and that of this nation. He must think unselfishly and broadly so that, when the boys abroad destroy the dictators over there, they can return to a democratic America in which the constitutional freedoms of man have not been impaired but augmented.

This is the third in a new series by Mr. McLaurine, as outlined in the December issue of "Cotton".

Reprints of this and previous articles are available upon request.—The Editor.

Pepperell's Four Point Manpower Program

By C. E. Roux

Personnel Manager, Pepperell Manufacturing Co., Biddeford, Maine

LOCATED IN a critical labor area, where 45,000 new workers have been added during the last four years, the Biddeford, Maine, plant of Pepperell Manufacturing Company has had its share of manpower headaches. But a skillful recruitment campaign, revamped methods of selection, a more detailed orientation program, and use of Job Instructor Training have brought results. Special attention is given from the first to problems of safety, morale, and absenteeism. Integration of effort throughout the plant has proved keynote of success.

THE COMPLETE utilization of available manpower in a slowly disappearing labor market, in an area where 45,000 new workers have been added during the last four years, has made it necessary to revamp existing methods of hiring and training workers here at the Biddeford plant of Pepperell Manufacturing Co. It has involved considerable adaptation in the use of women employees — careful job breakdowns, detailed methods of selection. It has meant more deliberate methods of recruitment, more conscious concern for problems of morale and safety and a more thorough, many sided attack on absenteeism.

Our recruitment is handled largely through the United States Employment Service, but we do not stop with telephoning that bureau for help. We maintain a vigorous direct mail campaign, in which an illustrated folder—a literal story in pictures — shows prospective women workers exactly what work they will do in the plant; how they will be introduced to it and made to feel at home; how they will be trained; where they can relax in leisure time with a cigarette, a soft drink, and pleasant companionship. It makes very clear the contribution they will make to the war effort and the mill's need of them.

These booklets, which give all details of where to come for an interview and at what hours, even the telephone number, are also distributed through the USES office. Supplemented by newspaper advertising, they make it clear to all women prospects that they are needed and will be effectively utilized in a vital war industry.

Selection of Workers

The next step after recruitment, of course, is selection — and the more thorough the recruitment, the more rigid the selection can be. The need of workers has not caused any relaxation in the careful consideration which must be given to general physical and mental characteristics, domestic conditions, transportation problems, etc., which determine the suitability and adaptability of a worker to the job. The suitability of the job to the applicant's needs must be considered almost as much as his suitability to the job, or he will become a maladjusted worker—and we know only too well that maladjustment leads to one of two roads: quitting or chronic absenteeism. For that reason, our interviewing methods and techniques have been carefully adapted to detect the applicant who is "shop-

All photos in this article were taken by Prescott L. Howard, mill editor of Pepperell Manufacturing Co.

Pepperell's Biddeford plant maintains a vigorous recruiting program but has not relaxed care in selecting workers. At left, Bob Steel, employment supervisor, is conducting interview. At right, Nurse Lamothe is beginning physical examination by taking the pulse of the new employee.

Knowing their associates makes new workers feel at home from the first; makes happy, well adjusted employees. Here, Mr. Steele introduces girls to Overseer Ed McDuffy, who will introduce them to their co-workers in the department where they will work . . . . . .

ping" for a job instead of seeking employment. He is the greatest financial risk of all.

Arrangements for a thorough physical examination and blood test are made after the initial interview. Such an examination is a further help in substantiating whether or not our initial selection was justified. Applicants who are interviewed and take a physical examination are asked to return the following day to be informed as to whether or not they have met all hiring requirements.

At the present time, the majority of our new employees are young men and women who are being introduced to their first jobs. The remainder are those who will subconsciously compare our plant with those plants in which they have previously worked. There is a certain amount of tension and nervousness; there are many questions, important or otherwise, that flash into the minds of new employees; and we consider the proper introduction to the job of vital importance. First impressions are lasting impressions.

Orientation Is Core of Program

That is why the orientation program is considered the core of the recruitment and utilization of manpower at Pepperell. It was developed through discussions with management and cooperation with the Superintendent of Maintenance and Safety. It begins as soon as the employee enters the plant.

Each group of new employees is taken to the Vocational Textile School and seated in a pleasant, cheerful classroom, where a member of the personnel staff gives an informal talk on the historical background and development of our company. Further explanation is made of what the company offers workers besides employment: clinical facilities, group and hospitalization insurance plans, vacations with pay, etc. Matters of company policy are outlined: the importance of reporting absences before starting time, the wearing of identification badges, the punching of time clocks, dates for pay checks, what deductions may be expected—all the little matters which should be explained *before*, not after, difficulties have arisen.

Also, because new employees on their first day are in a receptive mood, we take that opportunity to discuss absenteeism. We strive to appeal to fair play, and we stress the importance of each individual's staying on the job every hour. This type of discourse might be classified as an Oral Handbook, with an opportunity for the new employees to ask questions. We invite a discussion period at the end of each session, and we get stimulating questions, questions which are interesting to the group as well as to the individual who asks them.

Safety Is Stressed

The equally important topic of safety is presented to new employees by safety instructors in their respective departments. After being introduced to the instructors, the recruits are taken to the

An attractively decorated rest room provides opportunity for a few minutes relaxation and companionship. Important not only to prevent fatigue but to maintain morale among women workers . . . . . .

actual machines on which or around which they will work. When they have seen and understood them, they are better prepared to understand the discussion of hazards and the simple methods of accident prevention which are given in the classroom. Demonstration machines of the most commonly used types are kept in the orientation room for demonstration purposes, but where these are not available, the demonstration is made in the plant on machines in actual production.

This first day's orientation, we believe, is also a focal point for building morale, that intangible asset which keeps production in high gear. We make every effort afterwards to *keep* morale high—we insist that all foremen and supervisors continue to treat the workers under them as people; we provide attractive, decorated rest rooms for leisure time; we get out a monthly news-picture magazine, full of lively plant gossip; we maintain a special wartime training program to give workers self-confidence as well as skill from the first—but we believe the importance of getting them started off on the right foot can hardly be over-estimated. That is really the significance of the orientation program.

Training of Recruits Under Qualified Instructors

After orientation comes training—and here again, existing methods have been re-vamped to meet wartime conditions. We formerly used something resembling the apprentice system at Pepperell. Each new worker was placed with a skilled operator and shown the operation over an extended period of time.

Under today's conditions of rapid turn-over and high pressure production demands, however, this system has proved too slow. Today, we employ competent, full-time instructors, selected not only for their efficiency and knowledge of the job operation but for their ability to teach. Each one has completed training as a "Job Instructor" under the Training Within Industry Division of the War Manpower Commission. By such a program we have cut training time in many instances to one-half its original length.

Under this program the accepted principles of the Training Within Industry Division are followed. First, the instructor prepares the learner by putting him at his ease, making him aware of the problem involved, getting him interested, and basing instruction on what he knows already.

Second, the teacher presents the material to be learned one step at a time by the parallel process of telling, showing, and explaining. Key points are stressed, and no more is presented at one time than the learner can master easily and well.

Third, the learner is asked to apply what he learns as he goes along by performing the task step by step and explaining what he is doing. He is also asked to explain the reasons for each action, as they were explained to him, and to point out key points.

Finally, the instructor checks the learner's progress, his understanding of the work, his accuracy of performance and his speed. Errors are corrected and correct methods explained before bad habits can be developed. Repetition of correct methods is carried out under careful supervision to make sure that the details are absorbed, and encouragement is given to assure self-confidence.

Adequate recruiting, careful selection, thoughtful orientation, specialized training—these, then, are the four main ways by which we strive to make maximum use of the limited manpower available in a critical labor area like Biddeford. Much room for improvement yet remains, but we will make it, because such adaptation to wartime conditions is what spells success or failure in a mill today. We shall continue to experiment, to revamp, and—we hope—to improve; but we shall make no change in our fundamental policy that "it pays to treat people as individuals".

At right and below, Second Hand James Greenlaw demonstrates the spinning operation to new recruits. Job Instructor Training principles are followed . .

The Printing of Piecegoods and Related Processes

By Arthur E. Hirst

Technician, Standard Chemical Products, Inc.

THIS IS the fourth in a series of articles by Mr. Hirst on this subject and deals with the engraving of the copper rollers as used in the process of printing piecegoods. Details are given of the pantograph process—the preparation of the plates, the etching of the rollers—and machine engraving, including the straight die, traverse, and penta-die methods. Previous articles, which appeared in the December 1943, January and February 1944 issues of "Cotton", dealt with the preparation of the piecegoods for printing . . . . . .

Article 4

THE ENGRAVING of copper rollers for printing requires the most precise attention to detail of any of the processes in a print works. Good judgment and accuracy in every part of the process are necessary to avoid spoiling of rollers and repeating of engraving—and to guard against loss of time by the printer. Poorly fitted or incomplete patterns, especially when a multicolor pattern is involved, might mean the loss of hours of printing production and gallons of expensive color.

Care in Preparing Rollers

To a layman the necessary accuracy of fitting in the printing machine is always impressive, but he seldom appreciates the tremendous amount of care involved in preparing a set of rollers for the machine. One can readily picture the labor involved if a printer sets up say ten rollers and then finds that one is so defective that it must be taken out. Moreover, if the defect is so pronounced that a great many hours are required for correction, all the other rollers must be taken out to make way for another pattern, all of which means delay in delivery of the finished goods to the customer, who, in normal times, is prone to demand impossibly quick deliveries.

The method of engraving depends largely on the type of pattern to be printed, that is, whether the die and mill or pantograph process is to be applied, or possibly the design would require photographic engraving. We will take up each of these types in as much detail as permissible.

Pantograph Process

This process is used mostly on rollers to print such goods as percales, draperies, dress goods, etc., which carry large "shapes" or floral designs, called pegs, and heavy expanses of color, called blotches.

Let us suppose that a four-color pattern is involved. The engraver selects four hollow copper rollers, at least approximating the same circumference and length, the circumference running usually from fifteen to eighteen inches and the length depending on the width of the cloth to be printed. They have a wall of approximately 1½" to 2" in thickness. An offset about ½" wide and ¼" deep, called the key, runs the entire inside length and is designed to fit into a slot in the steel mandrel onto which the roller will be forced when ready for printing.

The rollers are turned down and polished to as nearly exactly the same size (circumference) as possible, certainly within .01-inch. Even a variation of this magnitude is sometimes disadvantageous. It will be readily seen that any appreciable differences in sizes would make impossible the registering of the component parts of the whole pattern, as each shade to be printed requires its own roller.

Designs as submitted to the print works are usually paper sketches showing the general result desired, but very frequently not drawn sufficiently precise to be copied exactly for printing. In such cases they must be revised before the engraving process starts. For instance, an exact copy of a dress goods design when put on the full width of cloth would sometimes be "sketchy"; that is, the print would show disagreeable rows of figures, giving a striped appearance.

Preparation of Plates

The first step in the pantograph process after the design is put into practical form is its reproduction, considerably enlarged, on a zinc plate or plates. The order of magnitude of the enlargement is expressed, in engraving parlance, as so many "dims", a contraction of "diminutions". For example, three dims means that the reproduction on the plate of any figure in the design is three times the size of the original. According to the requirements of the pattern, the dims will vary from 2½ to 9, the latter being for small objects. Naturally, a pattern which has been considerably enlarged cannot be wholly put onto a single plate of practical area, so in such cases, several plates bearing the several parts of the pattern are used.

In preparing the plate two methods are used. First, cut plates, now abandoned to a considerable extent in favor of the etched plate, involve a painstaking tracing of outlines by the sketch maker in a dark room. The design to be reproduced on cloth is placed in a reflecting "camera", the light from a high powered source directed on it and the image caught on the plate in the dark room. The plate has been coated with whiting or similar white substance and fixed at such a distance from the lens that the proper dim will be given. The sketch maker draws around the figures on the image with a pencil

and the plates are then taken to the plate cutter who, using a steel cutting tool, cuts channels in the plate, following the pencilled lines. Subsequently the cut plates are taken to the pantograph machine.

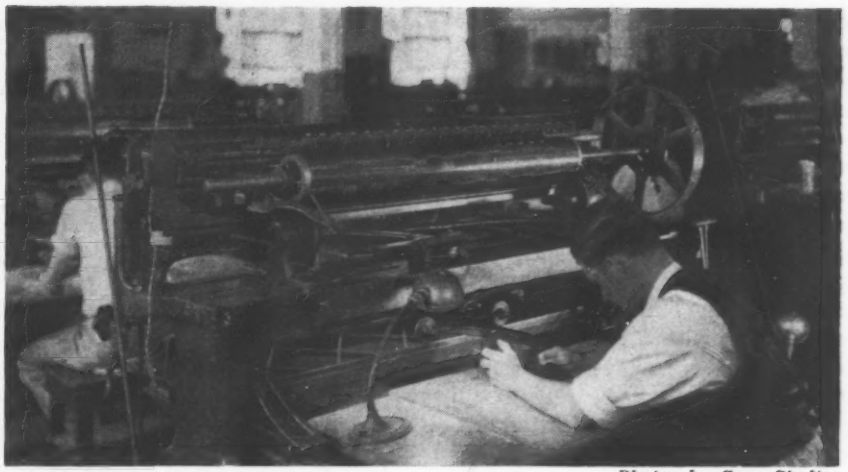
Second, in the etched plate method, the sketch maker prepares the pattern for joinings—that is, makes it practical for repeats—and makes allowances which will take into consideration the flushing of color on the printing machine. The zinc plate is coated with an acid-resisting substance, placed in the camera, and the larger figures of the design traced with a diamond, as is done with a pencil in the cut plate method. Smaller objects are outlined with pencil and then traced with a diamond by a sketch maker who takes allowances into consideration. Thus the coating is pierced, exposing the metal to contact with a nitric acid etching solution in the following process.

In connection with these preliminary steps, it is to be noted that certain processes to which the cloth will be eventually subjected will have a tendency to distort such geometric figures as circles, spots and checks. The circles and spots become ovals and the checks oblong unless due precautions are taken. To obviate this result, the spots for instance are engraved as ovals by letting out the figures in the pantograph. The distortion afterwards will work in the opposite direction and bring the object to the proper shape.

The plate now bears grooves from the etching and is ready for the pantograph machine. The polished copper roller to be used for one color in the print is "varnished" with a bitumen, applied by sprinkling on the copper or on a gelatine roller. The copper roller is rotated and the coating distributed very evenly by pressure of the gelatine roll.

Pantographing

The varnished roller is now set up on the pantograph machine, a device which consists essentially of a table to receive the etched plate, a stand in the upper background on which the roller is held and rotated as desired, and various devices to coordinate all parts of the machine. The machine is too intricate to describe here in detail, but the principle of it is as follows:



Photos by Coxe Studios

A pantograph machine in a prominent Southern printing plant

Over the varnished roller extends an arm equipped with diamond holders, the number of diamonds being determined by the length of the roller and the number of side repeats of the figure being engraved. Not more than twenty diamonds are used on a roller 40" in length. More than this would result in excessive drag on the machine.

The pantograph operator grasps a holder containing a steel pin and guides the latter along the grooves in the plate on the pantograph table before her. This motion is translated to the diamonds over the roller in such a way that by means of a foot pedal the diamonds are raised and lowered at will, a sidewise motion is imparted and the roller rotated as much as required. Thus, as the pattern is traced, the diamonds cut through the varnish in corresponding figures and expose the copper to the action of the etching to follow, the machine being so designed that the constituent part of the pattern worked on is restored to the original size on the copper.

Some engravers prefer that the outlines thus produced be single—some prefer it double, a point which is debatable. The opinion of some is that better and sharper spots are produced by single lines.

For pegs and blotches requiring a ground, that is, diagonal lines to carry the printing color and print an expanse of color on the cloth, a patented attachment is provided. By tracing these lines the figure is filled in with a series of parallel lines at a 32 degree angle—25 to 115 to the inch, according to the size of the object.

On the end of the mandrel carrying the roller is an index wheel divided into a number of parts, from 360 down to about 70. A pointer on an arm is used to subdivide the index wheel into the number of "rounds" required by the original design, that is, the number of times that a figure is repeated around the circumference of the roller.

Another detail to be considered is a pattern carrying a solid line straight across the print. It will be seen when the printing machine is described that the steel doctor edge bearing on the roller would drop into the engraving if the line were engraved straight across. To obviate this, the line is engraved on a slant—"slashed"—to the extent of 1" to 1½" over the length of a 36" roller. Thus some support is always furnished to the doctor by plain surfaces of copper.

The pantograph work now having been completed on one roller of the design, the others are successively processed in the same way until all are ready for the next step.

Etching of the Roller

It has been shown that the varnish on the printing roller has been scratched through to give a representation of the original pattern. The roller is now transferred to an etching trough where it is slowly turned in an acid solution composed of a 20 per cent solution of nitric acid or of an acid iron salt. Some etchers prefer the latter, as it is said to give a smoother etch, and some use a combination of the two. The time of immersion is deter-

mined entirely by the skill of the operator and the strength of the acid. About one-half hour is an average for a 25 ground.

When the etcher decides that his work is completed, the varnish is washed off the roller with caustic soda and the hand engraver examines it for removal of blemishes and to fill in any missing parts of the pattern. The final operation is polishing with a fine sand stone to remove burrs and scratches. To prove that the various rollers will properly register, one with the other, a "rubbing" is taken. This is done by taking an impression on oiled paper with lamp black from the main roller and fitting it successively on the others. Now a set of rollers is ready to be set aside for the printer.

Machine Engraving

There are a number of types of machine engraving—traverse, penta-die, straight die, pin ombre', skeleton blotches, and others, but we shall confine our discussion to those most used. Machine engraving is generally employed where small objects, solid or broken lines, pins and such are to be printed. Simply stated, the process is carried out by engraving on a die a reproduction of a segment of the original pattern, making a mill from the die and finally running the mill on the copper roller. However, the process may be intricate and call for extreme skill and judgment.

Dies. Dies are cylinders of soft steel varying a great deal in length and circumference, all depending on the size of the object and of the repeat, but the circumference must be a multiple of the circumference of the roller to be engraved so that the repeats will join exactly. The length must be sufficient to take an impression of a complete side repeat.

Straight Die Method. In this process the die maker traces the design on a gelatine film, then fills the tracing with pigment and transfers the pattern to a die, producing a rough outline of the required effect. Then the completion and refinement of the finished die is a matter of skill, judgment, use of pin effects, hand engraving, etc.

Traverse Method. The traverse method is much used in copying

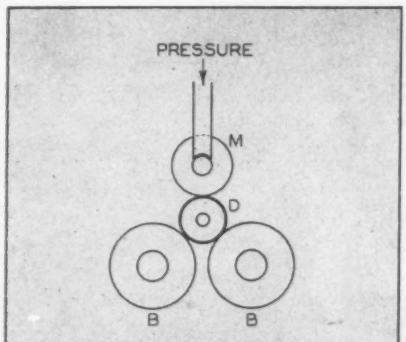


DIAGRAM OF CLAMPING MACHINE
M – MILL
D – DIE
B – BACK BOWLS

woven effects, such as ginghams, and consists of running a series of pins (dots or similar figures) on the die in various scales. The die maker builds up the design from these pins, which on close examination are seen to form geometric figures. The impression of this object or line on the die must not vary from the size called for on the original by more than .001-inch, as it can be seen that when the line called for is not more than .01-inch in width, the taking of greater liberties in cutting the die will produce a result widely different from that desired.

Penta-Die Method. This is simply a method of cutting a die by the pantograph method, placing the die in a special pantograph machine in a position corresponding to that occupied by the copper roller in the regular pantograph process. The process is used for engraving "silver greys" and other designs which are too fine to be practicable by pantograph.

Clamping

Now that we have a die engraved by one or another of the foregoing processes, it is hardened to prepare it for "clamping", which is intermediate between die making and the engraving of the printing roller.

As has been stated, the die is made of soft steel. Before the clamping process it must be hardened to withstand pressure and crushing of the engraving. It is placed in a crucible with cracked bone and heated to 1670 degrees F. for some time. The die is removed from the crucible and plunged carefully into salted water with oil. Thus the die is case-hardened to a depth of 1/64-inch.

The clamp is a machine composed of holders for the back bowls, which are two horizontal parallel steel rollers supporting the die, a support for the mill which runs on top of the die under pressure, and a driving mechanism (*see cut*). The mill is a soft steel cylinder turned to a size such that the circumference will be an exact multiple of the number of sketches on the die.

The mill is coated with tallow and bitumen and rotated under pressure (not too high, as this would cause the surface to harden) against the die, thus receiving in relief an impression similar to the engraving on the die. The plain surface of the latter squeezes off the coating except where the pattern is, thus exposing to subsequent etching the portion to remain plain. The mill is dipped in nitric acid to etch the exposed steel and is returned to the clamp where it is carefully fitted in the same position against the die and again rotated. This process is repeated several times until the mill holds a reproduction of the design on the die, but in relief or "cameo". The mill is then hardened in the same manner as was the die and taken to the engraving machine.

The Engraving Machine

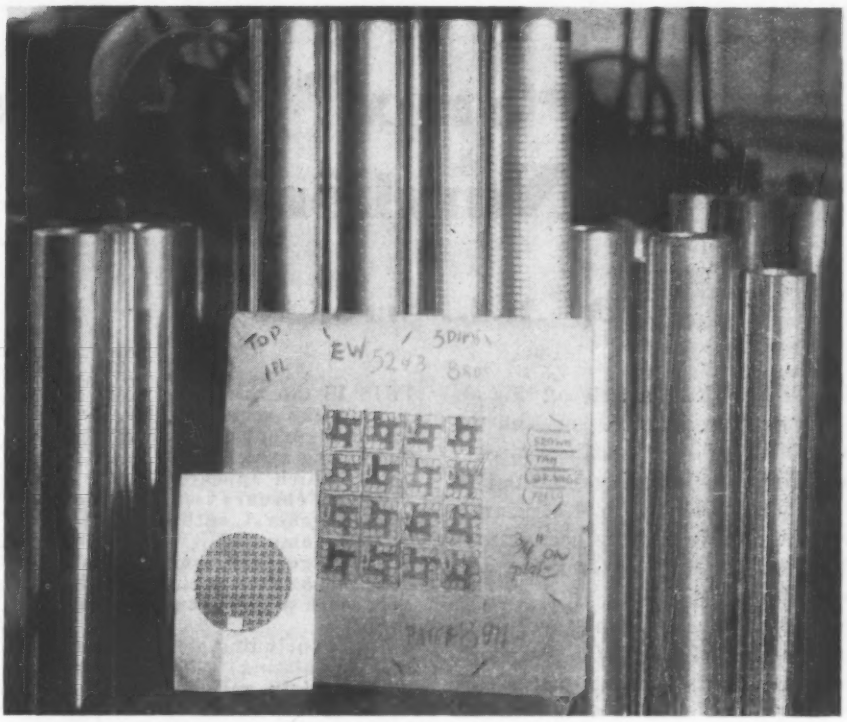
The function of the machine engraver is to produce on the printing roller, the circumference of which must be an exact multiple of the circumference of the mill, the final engraving of the design. This is done by pressing the mill against the rotating roller so that the raised pattern cuts into the copper and so reproduces the engraving on the die.

The machine on which this operation is carried out—the engraving machine—consists fundamentally of bearings for the mandrel in the roller, a head for holding the mill on top of the roller, a carriage running on a bed and driven by a screw, and a weighted arm to give the necessary downward pressure to the mill. At the end of the screw is affixed a 360-tooth gear, one revolution of which causes the carriage to travel one inch lengthwise of the roller; in other words, each tooth represents 1/360-inch side travel. Thus the gear is so divided that the engraver may figure the

side shift to correspond to the width of the design on the mill.

The roller to be engraved is forced onto a mandrel and set up on the machine. On the end of the mandrel is an index wheel similar to that on the pantograph machine, by means of which the engraver gets the proper subdivision of the "round". The mill is placed in position on the roller under pressure controlled by the weighted arm, and the machine turns—the raised pattern being impressed into the copper. The circumferences of mill and roller being exact multiples, the objects repeat around and meet exactly. The mill is then shifted sidewise one repeat and so on until the pattern covers the roller. Several runs are given to give proper depth, polishing being applied between each run to remove the burr. When finished, the roller should be an exact reproduction of the engraving on the die.

The engraving machine can also be assembled to run diagonal and spiral lines.



Showing original design for a 4-color pattern, the pattern enlarged 5 times (5 "dims") on plate ready for pantograph, and set of 4 rollers ready for printing machine

Photographic Engraving

While several modifications of the foregoing processes have been developed more or less successfully, we will conclude the subject of engraving with a brief description of photographic engraving, which produces on cloth beautiful printed effects with fine shadings such as are seen on rotogravure. Although engravings made by this process are shallow and consequently wear down more quickly than those made by the pantograph and die processes, the delicate prints are so striking that a general picture of the operations may be of interest. We shall confine ourselves to the process which is the basis of the most modern ones—the so-called Carbon Process.

The design is squared up as usual and is photographed on glass to conform to the size of the printing rollers, these photographs being negatives. As many positives are made as are needed to cover the width of the rollers and are set out on a glass plate, then being ready for photographing on the carbon tissue.

Carbon tissue consists essentially of a film of soluble gelatine and pigment on a paper backing. It is made sensitive to light by immersing in a 3 per cent solution of bichromate of potash in the dark. On exposure to suitable light the sensitized gelatine becomes more or less hardened in proportion to the amount of light action. The wet sensitized tissue is squeegeed onto a ferrotype plate and the paper backing stripped off. After it is dry or, if preferred, while still wet, it is taken off the plate, and one of a number of screens is photographed on it in a printing frame, exposure time being about seven minutes. These standard screens are photographed copies on plate glass made from an original master screen. The master screens have thin lines crossing at right angles etched on plate glass on various scales and filled in with opaque black bitumen. The photographic copies have square dots of bitumen corresponding to the spaces of the master screen, and the lines are represented by clear glass.

It can be readily seen that when the screen is photographed on the gelatine tissue, the very small areas under the transparent lines become hardened and insoluble, and those under the opaque dots remain unaffected.

The designs which have been set out on glass are now photographed on the carbon tissue. The components of the pattern, such as a floral head, thus protect the small squares of unhardened gelatine from light, while the areas carrying no pattern allow the light to be transmitted and harden the corresponding parts on the carbon tissue. The tissue is now ready to be applied to the printing rollers.

The rollers are washed with gasoline, wiped dry, then wet, rubbed with acetic acid and salt, and washed. Alcohol is finally used to dry them.

The tissue, which bears the photo of the design, is placed on the roller in true position with the aid of a line parallel to the axis, and fastened on with a sticker. A heavy squeegee roller is let down on the tissue and run around until, with the aid of a stream of water from a hose, the latter is smoothly and wholly in contact with the copper. Thus an impression of the pattern is clearly shown on the roller.

The squeegee roller is lifted, water at 120 degrees F. played on the tissue, and the tissue removed. The copper roller is now cooled with water and finally dried with alcohol.

Let us assume that we are work-

(*Continued on page* 114)

The "Grex" Universal Yarn Numbering System

By A. G. Scroggie*

IN THE FIRST article of this series, we pointed out the desirability of the textile industry adopting a universal yarn numbering system, based on direct units which could be readily decimalized. The merits of the "Grex" system were listed in detail. In Article 2, examples were given of the procedure to be followed by mills adopting grex units for measuring yarn number. In this article, we propose to discuss the use of grex units in the calculation of fabric costs and in fabric conversions.

THIS IS the third and final article in the series by Mr. Scroggie on this proposed universal yarn numbering system. The first two articles, which appeared in the January and February issues of "Cotton," gave a general outline of the new system, compared it with other systems in general use, and showed how those systems could be changed over with a minimum of inconvenience.

This concluding article deals with the calculation of the weight of yarn in cloth and summarizes some of the principal points brought out in the previous articles.

Calculation of Yarn Weights in Fabrics

To determine the weight of the yarn in a fabric of designated construction, it is customary to make separate calculations for the warp and filling, based on a specified length of cloth. The calculation of the weight required is based on the yards per pound of the specific yarn numbers being used, these yardages usually being obtained from a table. The calculation, when using grex numbers, would be identical with that now in use, the only additional requirement being a table showing yards per pound corresponding to various grex yarn numbers instead of the present numbers.

Under present systems, if either the warp or filling contains two or more yarns with different numbers or yarns of different numbering systems, then separate calculations must be made for each yarn, since the yards per pound corresponding to the different yarn numbers will vary and will not bear any simple relationship to each other.

When using direct units, however, the weights of the yarns will be in proportion to their yarn number. Thus, if equal ends of 100 grex viscose and 125 grex acetate are entered in a warp, the weight of the acetate will be 1.25 times that of the viscose. Also, if a warp had equal ends of 100 grex cotton (59 count) and 100 grex viscose (90 denier), the weight of the viscose would be identical with the weight of the cotton.

Tables could be calculated to show the yards per pound required for a given fabric construction and a specific grex yarn number. Such a table would apply to any fiber, and the necessity of having different tables for each fiber would be avoided.

Mr. Scroggie

A more comprehensive table could be prepared showing the pounds of single yarn required for a given fabric construction, having 100 ends per inch of 100 grex yarn and a typical reed width. Variation in the number of ends per inch, yarn number, or reed width would be directly proportional, regardless of the fiber used.

Thus, the pounds of 100 grex *unsized* cotton warp yarn (59s) for 100 yards of cloth, having 100 ends per inch and a width in the reed of 39 inches, assuming 6 per cent take-up in weaving, is:

$$\frac{100 \times 39 \times 100}{49610 \times .94} = 8.37 \text{ pounds.}$$

If the above formula is to be used for figuring the pounds of warp yarn in the *cloth*, the percentage of size should be added.

If 80 ends per inch of 150 grex (39s) cotton warp yarn are used, the unsized weight in 100 yards of cloth (39 inches in the reed) will be:

$8.37 \times .80 \times 1.50 = 10.04$ pounds.

Similarly, if 120 ends per inch of 75 grex (79s) cotton yarn are to be woven, the pounds of warp yarn per 100 yards of cloth would be:

$8.37 \times 1.2 \times .75 = 7.53$ pounds.

These values hold for any fiber, although there may be some differences in the take-up if the yarn number or the nature of the weave vary too much. A similar calculation can be made for different widths in the reed, but a separate formula for each reed width would probably be simpler.

In the discussions of this and the two preceding articles, the author has presented what appear to him to be the major problems which

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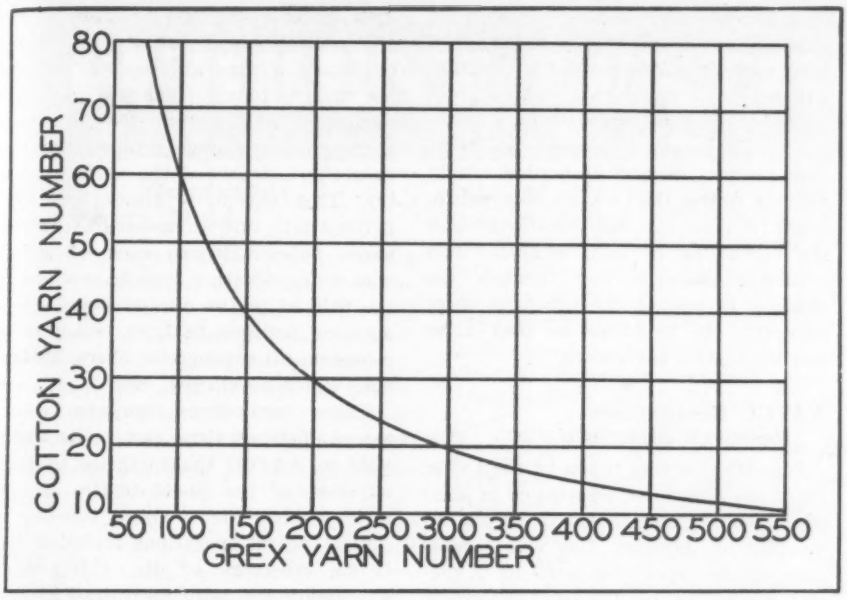

must be considered in any mill adopting grex units. Undoubtedly some difficulties have been overlooked, but the principal point to remember is that the mechanical conversion involves a few simple changes that can be carried out in most shops and the preparation of some new conversion tables fitted to the particular work being carried out. These difficulties are probably academic.

A more serious problem is the change in thinking that will be required when certain industries adopt direct units. In this connection, the author can say that he is familiar with a mill that changed from a reciprocal to a direct unit, which was being used to control a routine operation. It had been admitted for years that this change was desirable, but it had been deferred because of inertia and the fear that everyone would be confused when the new system was installed. The preparation of the necessary conversion tables and a short educational campaign, however, resulted in practically no trouble whatever. The old system was soon forgotten, once the merits of the new direct units were apparent.

The general adoption of "S" and "Z" to define direction of twist is another example of the ease with which a different method of expressing an idea can be installed, once there is agreement to go ahead with it.

(Readers are urged to write the editor or the author and express their views on the subject presented in the articles now concluded. Any questions not entirely covered in the series will be gladly answered on request.—The Editor.)

AATCC Announces Rules for Awarding of Olney Medal

The award of the Olney Medal by the American Association of Textile Chemists and Colorists is endowed by the Howes Publishing Company to afford public recognition of outstanding achievement in the field of textile chemistry and as a testimonial to Dr. Louis Atwell Olney, the president-emeritus of the association and the chairman of its research committee, in recognition of his life-time of devotion and multitudinous contributions to this field.

In making awards, the committee need not be confined to the consideration of any one specific achievement or contribution but may, in its discretion, consider the sum total of various and continued contributions to the field, no matter of how long duration.

The citation of the award drawn by the committee and accompanying the presentation of the medal shall set forth clearly the occasion for the award.

The election of a candidate to receive the award shall be effected by a committee of five to be constituted as follows:

1. The President of the AATCC.
2. One representative from each of the following three groups: (a) A member of the faculty of an educational institution awarding degrees in chemistry. (b) An employee of a concern manufacturing chemical products used in textile wet processing. (c) An employee of a concern manufacturing textiles.
3. A member at large who may be any qualified individual.

All shall be Senior members of the American Association of Textile Chemists and Colorists.

Any citizen of the United States of America, whether male or female, may be the recipient of the award.

Any senior member of the AATCC may nominate a candidate for receipt of the award by letter addressed to: Olney Medal Committee of Award, care of the secretary of the association. This letter shall set forth in detail all facts which qualify the candidate for consideration with particular reference to published works and professional qualifications. Nominating letters must be received by the committee at least six weeks prior to the annual meeting of the association.

The Olney Medal shall be awarded annually or at such longer intervals as the Committee of Award may elect.

The award shall be made only by unanimous vote of the committee. In the event that no unanimous agreement is reached, the award shall be passed for the year.

The presentation of the award shall take place at the time of the annual meeting of the association succeeding the election, preferably at the occasion of the annual banquet, or at such other time as the committee may direct.

Suitable acknowledgment to the founder of the fund shall be made at each presentation.

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Du Pont Develops New Rayon Fiber

A new high strength viscose rayon yarn, designated for experimental purposes as "Fiber G", has been developed by the Rayon Division of E. I. du Pont de Nemours and Company, Inc., Wilmington, Delaware.

Resulting from the adaptation of a new spinning method, the fiber is reported to have a tensile strength of five grams per denier dry and to retain 75 per cent of its strength when wet. The wet strength of Fiber G is said to be about the same as the dry strength of high tenacity viscose rayon tire yarns. Elongation reported is 6 to 7 per cent. Experimental sizes are 240 denier with 120 filaments and 1100 denier with 480 filaments.

Because of its unusual wet strength, the new yarn will probably be used primarily in industrial textiles, though it may prove useful in the apparel field; also in such articles as bathing suits, shoes, and corset nets. Some possibility is reported of its supplementing or replacing certain types of yarn now used in the military field.

National Cotton Week Announced

National Cotton Week this year will be observed during the period of May 22 to May 27, a week later than usual, according to a report from the Cotton-Textile Institute and the National Cotton Council. After consultation with representative chain and department stores as well as with drygoods wholesalers, the sponsors decided that the later period is the one at which retail presentations of summer cotton merchandise are at their height.

Following the slogan, "First in War, First in Peace", the celebration this year will be restricted almost entirely to emphasizing the role of cotton in wartime and peacetime. Consumer attention will be directed to various new developments mothered by wartime necessity which will serve consumers at the war's end. New plastic finishes developed for army raincoat fabrics will be featured, as will the water-repellent, flameproof, and weather resistant finishes developed for use by troops serving on Arctic and jungle battlefronts.

Particular stress will be laid on war cottons which have already entered consumer trade, such as balloon cloth used for underwear, handkerchiefs, and dresses, or water-repellent cotton twill used for coats and sports wear. Also emphasized will be methods of conserving cotton clothing and home furnishings, for patriotic reasons as well as for economy.

◆

Research the Key to 1944 Textile Progress

Research is the one sure prediction in an otherwise unpredictable year in textiles, states Douglas G. Woolf, first vice-president, Textile Research Institute, Inc., New York. The growth of research in 1944 and beyond is absolutely assured, he adds, as new interest in the subject sweeps the industry and as business puts cash on the barrel head for its financing.

Writing in the current issue of *Textile Research*, Mr. Woolf outlines the trends now emerging which "will affect both the immediate and long-range postwar period." Most significant, he says, are technical developments in the fibers themselves, research on new finishes and changes in existing textile equipment.

But he adds, "It seems almost certain that the economic problem will be greater than the technical problem after the war. Emphasis during the last few years has been on technological improvement and on reaching new methods of production effort. Major emphasis after the war may have to be placed upon the intelligent utilization of new facilities, benign in themselves but potentially malignant in their abuse. The whole problem of gearing our distribution machinery to take care of our expanded production will be on us again to a degree probably never before realized.

"It does no good to point to unlimited production and unlimited world demand unless the two can be synchronized. Synchronization comes through the utilization of both technical and economic research and through the relation of one to the other, to meet currently the problems as they arise and to plan for the future."

◆

AATCC Reorganizes Research Structure

Important action taken by the Council of the American Association of Textile Chemists and Colorists during its meeting on January 21st was acceptance of the report rendered by a special committee headed by Leonard S. Little on the reorganization of the association's research operations. Other members of the committee are J. R. Bonnar, secretary; William D. Appel, new president of the association; Thomas R. Smith, outgoing president; P. J. Wood and Dr. L. A. Olney, both ex-presidents and the latter research director since its foundation.

For twenty-two years, the AATCC has carried out an ambitious program of research aimed at the establishment in this country of textile quality standards and testing methods. Prior to that there were no recognized national standards, the field was chaotic, and the best to be had were foreign standards or sporadic specifications covering private house brands. Dr. Olney organized a general research committee which today comprises fifty-five members, representing a true cross section of the dyeing, printing and wet finishing interests of the textile industry. This executive group was subdivided into, and augmented by, thirty-seven subcommittees, each of which was charged with a specific problem in the field of textile quality standards—such as fastness to light, washing of colors on all commercial fibers, shrinkage, water repellency, etc.

These committee members volunteered their services and made available to AATCC the facilities of fifty or more of the finest textile laboratories which the industry affords. A typical year's operations included sixty-one meetings of the thirty-seven subcommittees, with an overall attendance of almost five hundred technicians.

A significant fact concerning the organization is that all this activity, professional services, laboratory facilities, time and travelling expenses were contributed without any cost to the association or to any branch of the textile industry. The only paid supervision was the time of the associate director of research, Bertil Ryberg, and the executive secretary, Dr. Harold C. Chapin, both resident at the Lowell Textile Institute.

The fruits of the labors of this research committee have been all the standards on color quality which govern textiles in this country today, as well as many other standards pertaining to special functions and finishes of textile materials.

Mr. Little's special committee was charged with modernizing the association's research structure with the intent of intensifying its work, of relieving Dr. Olney, who will soon retire from the chair of textile chemistry at the Lowell Textile Institute, from administrative duties, and of supplementing and assisting the volunteer committees with a staff of paid laboratory technicians. To this end, it proposed that a permanent Executive Committee on Research be appointed to establish the general research policy of the association and to organize and operate all the professional facilities which are to be set up. In its opinion, the main objective of the AATCC is to carry out in a practical way research of vital importance to the textile industry, and only by so doing can it maintain its rightful position as an authority in this field. A competent Director of Research will be engaged to assume the duties of Dr. Olney when he is ready to relinquish them.

New interpretation of the jumper style, in a heathery Teca blend covert weave containing Eastman crimped acetate rayon. Fabric from Cohn-Hall-Marx. Photo, courtesy Tennessee Eastman Corp.

CURRENT TEXTILE TOPICS

Halting Movement for Early 1944

POOR BUSINESS for January and a continuance in February gave little hope for a reasonable showing through the first quarter of 1944, although government agencies were still stressing the need of large production for combined military and civilian requirements. The situation was aggravated by manpower difficulties, but political controls were a greater deterrent influence.

Significant of the declining tendency last year, under inequitable conditions of ceilings and the loss of manpower, active spindle hours of cotton mills for December fell below 10 billion for the first time since July 1943. The July figure was an exception, the only month under 10 billion hours up to December, since November 1941, or before the war.

Cotton manufacturing has dropped to the lowest level of the war, with little sign of improvement in 1944. The predominating section, the cotton-growing states, entered the year with the lowest average figure for spindles in place since February, 1942. Last year, March active spindle hours hit a wartime peak of 11,647,373,456 for the entire country, largely due to 9,538,013,863 hours in the South, as other sections started declining long before that.

Marketing of cotton goods remained slow in February, after what was figured to have been, through January, the quietest movement for a long time. The dullness in trading during the early part of the year was ascribed to apathy of mills toward new orders, while trying to catch up on delayed deliveries, and to the confusion in adjustment to M-317 regulations.

Price Inequalities Cause New Expedients

Suggestions of increased sales here and there were heard in the past month, but individual orders evidently were smaller, and the aggregate yardage the same. Mills were selling for short terms, moreover, in contrast with earlier business for longer periods. A tight situation in supply and demand, as well as demands for wage increases and hopes of eventual government adjustments in prices, contributed to a conservative selling policy.

Textile labor in general has been agitating for some time the question of wage increases. Mill men apparently have not been opposed, and indeed could do little, about the issue. The question has been one of serious concern chiefly because, under the political-economic situation of today, the industry could not automatically adjust itself by making compensatory advances in prices on its goods.

Inequalities in the prices of gray goods, in the meantime, have disrupted the normal relationships between mills and converting units. In 1941, when gray goods had ceilings and finished cloths had not yet had them imposed, some mills resorted to the practice of getting their production converted before sale, in order to increase their margin of profit.

Even after ceilings were imposed on finished goods, better margins were possible than on gray constructions. Mounting costs of production, which last year wiped out or nearly eliminated profits on gray goods, made it expedient for mills to expand their converting before sale.

Orders and Directives Create Disturbances

Whether justified or not, M-317 led to much declining of non-rated orders for many weeks. Stating that many mills and sales agents seemed to have misunderstood the order, WPB urged that its percentages were "fixed at levels designed to insure protection to holders of rated orders and, conversely, to afford every reasonable assurance that an ample yardage would remain available for distribution against non-rated orders. Unwillingness to make non-rated sales, therefore, tends to defeat the purpose of the order just as, prior to the issuance of the order, unwillingness to accept a proportionate share of rated business made the order necessary."

Apart from confusion, or misunderstanding, the mills well into February were more or less uncertain as to how they stood in adjusting rated and non-rated business.

Another serious threat to textile output was seen in the Vinson directive establishing the basis for price relief on low-priced goods. It was felt in the goods markets that stimulation of further production in such essential lines could be created only by a new attitude of the government toward price ceilings.

Military requirements of 1944 may be larger than those of last year. More civilian items are being classed as essential from time to time. Yet unprofitable operations mean decline in production, however much the OPA disregards such a fact.

Marginal plants, with costs above those of efficient mills, were needed to create the abnormal production for all-out war and they are still needed. February was the 22nd consecutive month of frozen prices, with the OPA impervious to demands for recognition of increased costs.

Instead of taking a practical view of conditions and trying to get the production wanted by allowing prices consistent with costs, including a reasonable profit, the government suggests the altruistic idea of pooling agreements under which the more efficient plants would carry the others. That would indeed be a new brand of economics.

New England Mill Situation

VARIOUS circumstances contributed to persistent caution among cotton manufacturers of New England during much of the first quarter. There were further demands of the government for military goods and a serious loss of production on account of the Fall River strike, in addition to the defection of manpower and a disposition to wait for possible changes in government controls. Also the wage situation was prejudicial to long-term trading.

During February the market heard reports of intended revisions in end-use regulations on combed yarn goods, which are a prominent part of production in the district. However, the trade showed skepticism as to possible changes affording relief through the first quarter. It has been anticipated that considerable changes may be realized in the April-June period.

Attention was being given to curtain goods when it was diverted by the news that the Army would require 75,000,000 yards of mosquito netting. It was estimated that, based on recent productive capacity, such business would occupy mills until well into next year. Mills were already well sold ahead—nominally till June, but practically to September, due to production losses because of strikes.

Fall River Ends Strike After Nine Weeks

Seven cotton mill units of Fall River were seized on February 9 by Army officials, under a Presidential Executive Order, but the strike which began in December did not end until February 14. Members of the three textile craft unions—loom fixers, slasher tenders and knot tiers—defied the government for a time, but finally put military considerations above the issues at stake.

Vital war materials were concerned, and the independent unions involved acted on that consideration. The issue between them and the CIO remained unsettled. It was not a wage controversy.

As indicated, however, the wage situation has been giving manufacturers concern for some time and affecting their plans for production. Talk of demands has been in the air for many weeks.

February brought word that New Bedford had been chosen as the test city in which the Textile Workers' Union of America, CIO, would base its claim for a national wage increase. The TWU director, Antonia England, reported that 24 members of the local had completed a fortnight's survey in an attempt to show that the cost of living had exceeded wage increases.

This survey was to be submitted to the War Labor Board. The national TWU already had announced a demand for wage increases of at least 10 cents an hour and a minimum of 60 cents an hour.

Severe Slump Marks Mill Production

General loss of production in the latter part of 1943, through manpower shortages aggravated by strikes in many mills, brought a severe slump in New England cotton manufacturing in January. The situation is reflected in the latest figures by the Bureau of the Census on cotton consumption.

January showed a total of only 70,302 bales, against 81,099 for December and 95,804 for January of last year. The consumption is the lowest since June, 1940, when the industry was at a very low rate in this section and consumed only 60,488 bales.

Recent operations have intensified tightness of the supply position. As indicated, the strike has even hampered production for military needs.

For many months the position of civilian goods has been serious. The percentage of production for military goods is estimated at 60 to 70. Declining output, and the need to fill military demands first, suggests acute prospects for civilian goods.

"THE SITUATION" as Seen Across an Executive's Desk

February 16, 1944

Voluntary Wage Rate Adjustment

On February 3, by a vote of 8 to 4, the Fourth Regional War Labor Board authorized approval (upon proper application to the Board) of voluntary wage adjustments up to fifty cents per hour for all business and industry in the region.

The resolution follows:

First, the (Wage) Stabilization Director (of the Regional Board), without further action of the Board, shall approve voluntary increases, up to fifty cents per hour, when properly applied for.

Second, to prevent misunderstanding, the Board makes the following statement as to the meaning and effect of this order, namely:

In dealing with voluntary increases, the sole authority of the Board is to check such increases where they believe that, if permitted, the increases would have an inflationary effect. Except where voluntary increases would have an inflationary effect, the Board has no right to interfere with what the parties have agreed upon. The Board does not believe that such increases up to fifty cents an hour will have a substantial tendency toward inflation.

Based upon these determinations the Board has taken the above action.

This action of the Board relates only to voluntary increases and is not to be taken as governing dispute cases. Each dispute case must be determined upon its own facts.

The approval of proposed adjustments above 50 cents per hour in voluntary cases, whether on the basis of across-the-board awards, tapering (and to what point) or brackets, shall be determined after consideration of the following factors: the needs of immediately inter-related job classifications, the maintenance generally of the established differentials in wage rates for the various jobs in the plant, and the peculiar characteristics of the wage structure as a whole in that plant and in that industry. Normally, the increases granted above 50 cents an hour to take care of closely inter-related job classifications should stop at 70 cents per hour. The Director of Wage Stabilization is authorized to rule on all cases to which this paragraph may be applicable.

You will note that the action of the Fourth Regional War Labor Board has no effect upon the textile cases pending before the National Board in Washington.

In accordance with the foregoing action of the Regional War Labor Board in authorizing a rate of 50 cents that can be approved when properly applied for, the following procedure is established to take care of closely inter-related job classifications above 50 cents:

1. Normally, rates above 50 cents an hour will be tapered in such way as to preserve minimum differentials. Tapering will ordinarily stop at 70 cents.

2. If, however, the job rates are so close that tapering would destroy rate differentials, particularly where a large proportion of the workers are below 50 cents, the amount required to bring the lowest rate to 50 cents (or the rate requested) may be granted "across-the-board". This type of decision would be justifiable in those industries where the differentials are only one-half, one, or two cents.

3. In those industries where a large proportion of the workers are below 50 cents and the rate differentials are very narrow, it may be permissible to grant an average increase equal to the difference between the present lowest rate and 50 cents (or the rate requested), to be distributed by the applicant or applicants in such way as to insure a balanced internal wage structure. If this alternative decision is approved, it will be subject to the following provisions:

a. The lowest rate must be increased to 50 cents or to the specific requested rate if lower than 50 cents.

b. The result of the distribution cannot be used as a basis of a later application to correct intra-plant inequities created thereby.

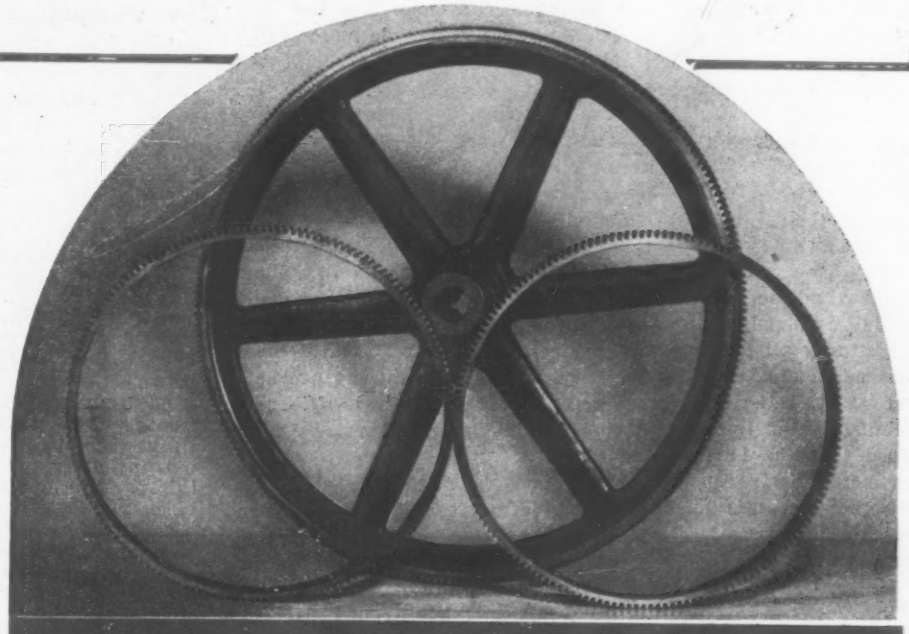
4. The lowest rate refers to the rates paid sweepers, cleaners, and outside laborers. It does not include rates paid handicapped workers or learners rates in effect for a definite learning period.

Price Ceilings

The preceding paragraphs accent the critical situation already existing in the manufacturing margins of many textile commodities. The wages of workers now will be materially increased, and many mills will find themselves producing at a loss. Before the ruling of the Fourth Regional War Labor Board, the Journal of Commerce discussed the situation as follows:

"Gradual advances in costs of raw cotton are attracting attention among mill men currently. Mills operate under ceilings based on 20.37 raw cotton in Southern markets—frozen since May, 1942—while the average price in

New Teeth Make An Old Gear BETTER THAN NEW



Steel gear rings, mounted and unmounted. The ring in use is on a large double gear for a Haskell and Dawes machine. This gear cost about $40; the mill saved 30%-40% by repairing it.

Steel gear rings for loom friction gears are a practical repair device used widely now in the interest of wartime economy. They are proving so thoroughly satisfactory that they'll probably go right on saving time and money for mills after the war is over.

When the teeth wear or break off of the big friction gear on the loom, you simply turn the broken teeth off and shrink on one of these steel rings. This gives a sound gear with steel instead of the original cast iron teeth. A friction gear is expensive and heavy, and you can often save as much as 50% by giving it a new set of steel teeth.

You are invited to write for complete information on this and other wartime developments.

WEST POINT FOUNDRY & MACHINE CO.

(Batson-Cook Company, Owners)

WEST POINT, GEORGIA

Southern markets currently is 20.69 a pound. Large amounts of cotton are in government loans, and the situation appears to be gradually tightening, with a difficult position ahead in the balance of the current cotton season for those mills which have not anticipated their needs. As of January 27, cotton yarns were selling for 14.22 a pound over the cost of raw cotton against 15.71 in May, 1942; sheetings 16.52 against 16.95; ducks and drills 17.71 against 17.82. These margins, which are understood to have become less favorable since that date, do not, however, tell the whole story. Labor costs have advanced in the interim due to wage increases, efficiency of help has deteriorated, most supplies cost mills more, and overhead has increased due to the need for more help to do the same task and to the necessity of dropping third shift operations in many plants. Furthermore, new wage demands are before the industry."

The mills are doing their best to meet every demand made upon them by the government. They have worn machinery, tired help, new and inefficient help, inadequate labor supply, increased costs in practically all phases. OPA still remains adamant for the most part and refuses to believe the reports about the distress of the industry. It is hoped that the impact of this new wage increase will cause them to review all other increases and that ceiling prices can be increased to a reasonable level.

War Manpower

The manpower situation has not improved—in fact, it grows steadily more critical. While some industries are leveling off or cutting back, others are expanding rapidly.

Men and women are being drawn into military service every day. To provide a net increase of 800,000 in the strength of the armed services, approximately 1.4 million will have to be inducted, in order to compensate for those who are discharged or lost.

The seasonal labor needs of agriculture—about 3.4 million between January and July—must be filled. Apart from seasonal agricultural requirements, our civilian employment, plus the armed forces, must increase by 900,000 by July 1944. This increase will be extremely difficult due to the depleted areas from which manpower can be drawn. About 8 women leave the labor market for every 10 who enter it.

An increase of perhaps 100,000 workers in textiles, clothing and leather appears to be indicated on a requirement basis. Employment in this group of industries has decreased that amount recently, thereby curtailing many of the items needed.

Everything within reason to conserve and preserve manpower must be done. The production of war necessities must be met, and certain civilian essentials must also be met. Thus the War Manpower Commission outlines our manpower situation.

The 1943 Strike Record

The Wall Street Journal comments upon the 1943 strike situation as follows:

"Secretary Perkins' preliminary report on strikes during 1943 gives the number of such interruptions as 3,750, compared with 2,968 the year before, and the number of man-days lost as 13.5 million against a little more than 4 million in 1942. Four coal mine suspensions were responsible for 8.5 million or 65 per cent of the lost man-day units of work. Excluding these, however, the idle time was about 20 per cent greater in 1943 than in 1942."

Actually, the strike loss in production was greater than these figures imply; how much greater the available data do not disclose. It is a commonplace that in modern industry the idleness of men on strike reduces the productivity of many others who are not on strike, but this latter loss is not included in the total of strikers' lost man-days.

This time the Secretary's report makes no effort to minimize the seriousness of strikes in relation to the war effort. On the contrary, it asserts that "national labor leaders and government officials having any part in labor relations cannot relax their efforts to prevent strikes, to settle strikes and to keep men at work."

Not only should they not relax their efforts; they should redouble them and seek vigorously to remove the causes which lead men to throw down their tools. For one thing, government officials having to do with labor relations should cease to encourage strikes by granting wage "adjustments" to labor groups which walk out or threaten to do so if their demands are not granted by a specified date. For another thing, the War Labor Board should either abandon its Little Steel formula or enforce it impartially, without inventing sophistries to excuse deviations from it where the labor group concerned appears too large and too determined to be subjected to the national stabilization policy.

Simplified Tax Returns

Simpler tax returns, which everybody wants, run smack into three obstacles:

1. Law-makers cannot agree on how to eliminate the Victory Tax. They also expect Treasury opposition to the proposal that year-end (March 15) returns be optional for tax-payers made current by salary deductions.

2. Simplification might even force a boost in rates. Only folk claiming refunds would file optional returns, it is felt. And if the simple "short form" is made applicable to the $5,000-a-year earner (now $3,000) only those taxpayers who figure it would be cheaper for them would use it. The government would lose in both cases.

3. Many low-income people would still be stuck with filing returns. Example: Small home buyers whose interest deductions would be lost otherwise.

Renegotiation

Although industry did not secure all the amendments desired in the renegotiation section of the new Revenue Bill, it may feel that it secured some relief in the following clause adopted in conference and dealing with "the increment in value of the excess inventory":

"Notwithstanding any other provisions of this section, there shall be excluded from consideration in determining whether or not a contractor or subcontractor has received or accrued excessive profits that portion of the profits derived from contracts with the Departments and subcontracts, attributable to the increment in value of the excess inventory. For the purposes of this paragraph the term 'excess inventory' means inventory of products, hereinbefore described in this paragraph, acquired by the contractor or subcontractor in the form or at the state in which contracts for such products on hand or on contract would be exempted from this section by subsection (1) (1) (B) or (C), which is in excess of the inventory reasonably necessary to fulfill existing contracts or orders. That portion of the profits, derived from contracts with the Departments and subcontracts, attributable to the increment in value of the excess inventory, and the method of excluding such portion of profits from consideration in determining whether or not the contractor, or subcontractor, has received or accrued excessive profits, shall be determined in accordance with regulations prescribed by the Board. In the case of a renegotiation with respect to a fiscal year ending prior to July 1, 1943, the portion of the profits, derived from contracts with the Departments and subcontracts, attributable to the increment in value of the excess inventory shall (to the extent such portion does not exceed the excessive profits determined) be credited or refunded to the contractor or subcontractor, and in case the determination of excessive profits was made prior to the date of the enactment of the Revenue Act of 1943, such credit or refund shall be made notwithstanding such determination is embodied in an agreement with the contractor or subcontractor, but in either case

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What's more, after a long initial service life, Armstrong's Cork Cots can be rebuffed—made like new—three or four times. Each cot thus gives four to five service lives!

In addition to long service, cork gives you *better running work*. Because of cork's high coefficient of friction, Armstrong's Cork Cots produce more uniform drafting, with a minimum of slippage. There's less clearer waste, and eyebrowing is eliminated. You get a true drafting surface, too, for cork does not "flow" under pressure.

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* SYNTHETIC RUBBER

such credit or refund shall be made only if the contractor or subcontractor, within 90 days after the date of the enactment of the Revenue Act of 1943, files a claim therefor with the Secretary concerned."

Postwar Trade

Already, in the minds of many people, postwar trade is being considered. The Atlantic Charter, with its far-reaching statements relative to international trade; the final attitude of the government in its dealing with realities, overshadowed by idealities; the fear of cartels, or government control of most international business, give the system of free enterprise much concern.

The tariff question will soon stick its head up prominently in the halls of Congress, and trade treaties will come along for further analysis and consideration.

Already the Ways and Means Committee has quietly instructed the Tariff Commission to start investigations and get material ready on certain specific commodities. In addition to this, many industries and associations are considering their competitive conditions in the world markets.

Inflation

The inflation fight drags. Steel prices and steel workers' wages are the stumbling blocks. We have heard that OPA may try to balance off lower prices for alloy steels against higher prices for carbon steels. Officials seem convinced that a general price boost is not needed.

WLB is boxed by its own wage (Little Steel) formula. Unless Roosevelt approves a pay increase to offset higher living costs, steel workers will have to be turned down. Congressional strategy is to wait until the price control law is due to expire June 30. This will bring the big showdown on price-wage stabilization.

Economists now figure the 1944 inflationary gap at $37 billion—the difference between income, after taxes, of $132 billion and consumer expenditures of $95 billion.

Postwar Plans

In the minds of most people who think of postwar conditions, three problems always arise:

1. The termination of war contracts.
2. Reconversion to civilian production.
3. The disposition of government-owned plants.

There are some long-term problems such as unemployment, monopoly, distribution and foreign trade. All problems are inter-related. The question of termination of contracts is a vital problem in that industry will find it difficult to know how to plan intelligently until it knows specifically how contracts will be terminated; what will be done with surpluses; and, when war needs end, what will be the size of lend-lease requirements. Industry, which has machines and money tied up in war production, must have some definite idea of its competition from government released goods and must know how much free capital it will have to finance its postwar or reconversion projects.

Reconversion in the cotton textile industry will not be so serious as in many industries that were practically made over. However, there will be many readjustments to be made to get back into competitive civilian production and to become adjusted to the new demands that war has produced.

While government financing has entered very little into the textile industry, its invasion of other industries has been highly significant. According to Mr. Jesse Jones, the government has invested more than 9 billion dollars in 1753 plants built through the authorization of the Defense Plant Corporation, a subsidiary of the RFC. Other sources report that more than 6 billion dollars additional have been furnished to operate these plants.

Thomas C. Clark, of the Justice Department's Anti-Trust Division, is reported to have stated that at the start of the war program in this country 175,000 companies provided 70 per cent of the nation's manufacturing output, while today 100 companies hold 70 per cent of the war and essential civilian contracts.

What are the government's plans? How will it dispose of its properties? Will it continue to operate some of them? Will monopolies be formed under government guidance? These and dozens of other questions interest people who are not now affected by these properties. It is the thought of many people that the government's attitude regarding government-owned property will be a key to the future of American business and will be indicative and determinative of the kind of hopes and plans that all industry can have. Postwar planning now is necessarily nebulous. More information is needed than is now available.

Civilian Goods Production

Civilian goods production has declined only 8 per cent since 1939 despite the huge increase in war output, L. A. Appley, executive director of the War Manpower Commission, has asserted. He contended that in the nation as a whole there was never much "conversion" to war production, but merely an "addition" of war manufacturing. Non-war production in 1939 was $87.2 billion and it amounted to $79.9 billion in 1943, measured by 1939 prices, Mr. Appley said.

Draft Outlook for Your Workers

A million fathers were reclassified in December, according to an announcement this week by Selective Service. Of this number, only 50,000 were inducted into the services; only 11,500 were placed in 3-D as hardship cases, and 50,000 in 4-F. More than 60 per cent of all fathers reclassified received occupational deferments, reflecting the easier standards applied by local boards to men with dependents. Classification of the remainder, some 250,000, had not yet been finally decided.

A notable exception to the eased occupational deferments for fathers is the group of men under the age of 22. Such men, when employed in activities other than agriculture, will find it extremely difficult to obtain occupational deferments or extension of present classification in 2-A or 2-B. The effect of the new policy will be to delay the induction of fathers in the older groups of the military age bracket.

Selective Service is counting on taking in 50,000 men monthly from among those reaching the age of 18. The remaining 200,000 of the monthly quota, at least until July 1, may be expected to come from the following groups in order: youths under 22; non-fathers in the upper age brackets; fathers.

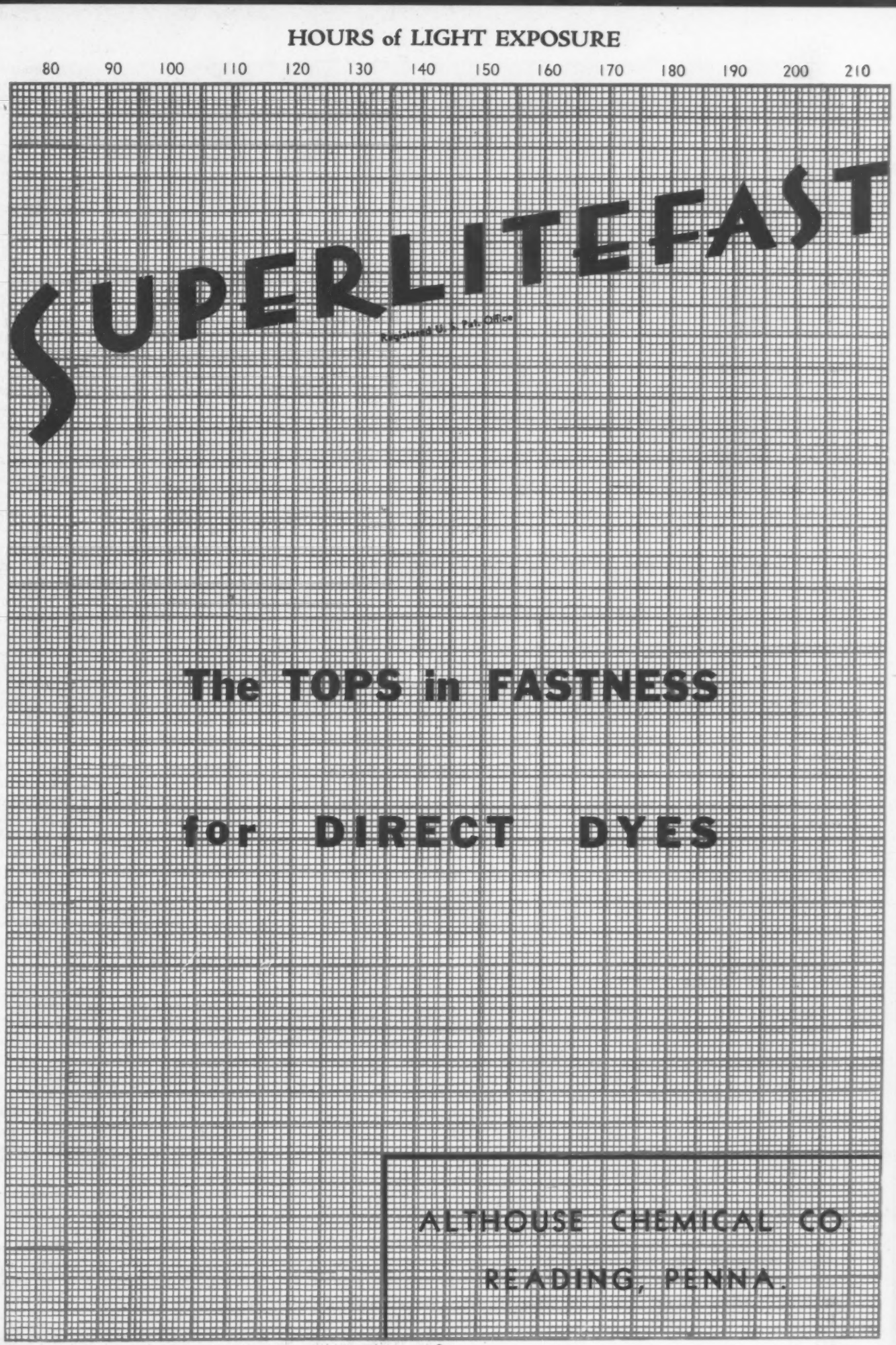
We are informed that the drafting of men from any individual plant will not necessarily follow this pattern rigidly. Men holding occupational deferments will be expected to go into service in accordance with replacement schedules. If a mill can establish that it is utilizing its entire working force to the full and that it is hiring women, older workers, and the physically handicapped to replace men being drafted, it will in most cases be permitted to keep its key workers until replacements have been trained.

Cotton Consumption

There seems to be an inclination among certain officials to smear the cotton textile industry by referring to it as inaugurating a "sit-down strike" because of price ceilings. These officials perhaps are inflated by their present prominence in the war program and do not avail themselves of the fund of information which will and can explain the situation.

During the last five months of 1943, the consumption of cotton by American mills was only 9 per cent under the corresponding 5 months of 1942. It must be remembered that 1942 was the peak year of production for all time,

FASTNESS to LAUNDERING


HOURS of LIGHT EXPOSURE
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and every one was working under the top emotional stress of a war that had to be won at once.

Beginning in 1943, manpower, machine-power, supplies, new and inexperienced help, a continued drain of men from textiles to other war plants, a more rigid induction system into the armed forces and many other factors had depleted the resourcefulness of practically every manufacturer in his unceasing drive to furnish the government with every ounce of production desired. In this connection, it might be added that the many conflicting and unintelligent directives which have been issued have caused confusion that has resulted in decreased production.

A study of the labor force available will indicate its decimation. Mr. McNutt says the textile and leather goods industries are 100,000 workers short of their needs. Hundreds of thousands of workers now on the job are new, old or inexperienced and naturally cannot turn out the work of experienced and efficient labor.

The mill men want to make money. That is a laudable ambition, but they want to win this war more than they want to make money. When any one insinuates that textile management is holding back because of prices, that person is woefully ignorant or intentionally trying to smear the reputation of an industry which has won public acclaim by all classes and groups of people both within and without the industry.

Cotton textile managers are loyal and patriotic and are doing all within their power to supply the government all that it needs and desires, regardless of ceiling prices. They feel that, because this is their attitude, their ceiling prices should be adjusted by OPA so that they will not be penalized for being patriotic.

The textile industry is asking for no special favors, but it does feel entitled to a square deal.

What the Textile Mills Are Doing

Ward Hickok, vice-president and general manager, North Star Woolen Mill Company, Minneapolis, Minn., has announced several additions to the staff of district sales managers. Harold Leydon, who has been functioning as New York branch manager as well as Eastern sales manager, has been relieved of the former duties so that he may devote full time to his growing work in the Eastern area. Peter McCrae, who joined the North Star organization last February, first in special research capacities and then as Boston branch manager, has been appointed branch manager in New York. Succeeding Mr. McCrae in Boston is Stuart T. Abbott. Taking over as branch manager of the Cleveland office is E. C. Campbell.

Limerick Yarn Mills, Limerick, Maine, have arranged for lease of an entire mill on the property of Amoskeag Industries, Inc., Manchester, N. H., totaling about 185,000 square feet of space. Occupation of the new branch mill will begin at once, with reserve machinery being moved over from the Limerick plant. Installation will include about 5000 spindles and accessories, to be used in special yarn production for socks of the armed forces until further notice. The immediate working force will be approximately 150 people, with plans for increase later to 600. Glenn Patrick will be superintendent at the mill, and Richard G. Jordan, agent.

Cardinal Commission Company, Burlington, N. C., has purchased the former Siler City Hosiery Company mill of Mock-Judson-Voehringer, Inc. Purchase was made from the newly formed A. Q. Siler City Company, which had recently acquired the property. J. C. Boles, president and treasurer, Rufus Wilson, Inc., is head of Cardinal Commission Company. W. H. Sharpe, formerly manager of the plant for Mock-Judson-Voehringer, Inc., will continue in this capacity under the new ownership. The property will be held for postwar projects and will be equipped by the new owner as soon as machinery and facilities are available.

Twenty-one "first ladies" of Hercules Knitting Company, New York, women who have been with the company since its formation, were entertained recently at the first Women's Quarter Century Club dinner. Corsages and telegrams of congratulation from company officials contributed to make them realize the company's appreciation of their services.

At Port Ewen, 80 members of plant personnel have recently completed the Job Relations Training Program offered by the Training Within Industry Division of the War Manpower Commission under the direction of E. J. Walsh.

Wayne Knitting Mills, Fort Wayne, Indiana, have purchased Rodgers Hosiery Company, Athens, Georgia. The plant will be continued in service as a wholly-owned subsidiary, operated as a gray goods plant, with dyeing and finishing handled at the Fort Wayne mill, where capacity has been increased. Approximately 400 people will be employed at the Athens plant, with Charles Koch, Jr., superintendent. John J. Kronenberg is president and general manager of the purchasing company.

North American Rayon Company, Elizabethton, Tenn., has awarded general contract to Hughes Foulkrod Company, Schaff Bldg., Philadelphia, for new additions to the plant. The additions will comprise several buildings to be used in high-tenacity yarn manufacture for tire cord. Having a priority rating, the work will be placed under way at once. Cost is estimated at $1,000,000, including machinery. Moran, Proctor, Freeman & Mueser, New York, are engineers.

Atlantic Rayon Corp., Providence, R. I., is arranging a postwar expansion program at a branch mill in Manchester, N. H. Additional machinery and facilities will be provided to increase the present working force from about 800 employees to approximately 2000, with production devoted largely to twisting and sizing operations. The company will also make extensions in another branch mill at Suncook, N. H., used for similar work, as a further postwar development.

Monadnock Carpet Company, Milford, N. H., has been sold by Arthur E. Dunn to Edward I. Goldenberg, head of Vernon Rug Mills, New York City. Mr. Goldenberg has also purchased adjoining property so that the mill can be extended. Harry L. MacCready will be in charge of the plant, and Vernon Rug Mills will be sales agents. The latter company now controls mills in Philadelphia, Pa., and Taunton, Mass.

American Thread Company has begun operation of its new branch mill at Tallapoosa, Georgia. Running on a 24-hour, three shift basis, the plant will operate 16,000 spinning and 7500 twister spindles. Approximately 400 persons will be employed, with J. F. Plexico mill superintendent. The mill building, former Tallapoosa Mills property, has been remodeled and considerable equipment added.

Brown Textile Corp., Nasonville, R. I., a new concern recently formed by Thomas Brown, formerly superintendent of California Cotton Mills Co., and more recently with the Quartermaster Depot, Philadelphia, will do custom picking, blending, and carbonizing of wool and wool blends.

Scratches are fatal because they mean rejections! In the case of bronze bearings and bushings for important war-time requirements, scratches occurred when these items came in contact with each other during various phases of production and shipment. The answer? An H & D war-time packaging development that provides positive product protection throughout the entire production and shipping cycle.

H & D Package Engineers are not only devoting much time to war-time packaging but are also turning their attention to the packages of tomorrow.

Post-war packages must receive the same careful planning as the products entrusted to them for safe arrival. Damaged deliveries never create customer good-will. So plan *now* for your post-war packages, and plan to use corrugated boxes that both protect and promote your products. H & D's vast storehouse of war-time packaging information is available now for planning peacetime packaging. Write today.

BUY WAR BONDS — YOUR SAFEST INVESTMENT

Tells HOW to PACK War Materials in Corrugated Boxes

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AUTHORITY ON PACKAGING . . . CORRUGATED SHIPPING BOXES

Morgan Cotton Mills, Inc., Laurel Hill, N. C., is building an addition to the Richmond plant, with Southeastern Construction Company, Charlotte, general contractors. Constructed under WPB permission and using a minimum of critical materials, the addition is 100 feet by 125 feet. Alterations are being made also to the existing plant.

The offices of Wuskanut Worsted Mills, New York City, have been moved to 51 Madison Avenue, where they have been merged with those of Herbert Lawton & Company. The Wuskanut firm was sold recently to the Herbert Lawton group, which now includes the complete personnel of the Wuskanut local representation.

W. Warren Thread Works, Inc., manufacturers of cotton threads since 1864, is moving from its former address at 57 Leonard Street, New York City, to larger quarters on the fifth floor at 66 Leonard Street. Three years ago, the firm transferred its main office from the mill at Westfield, Mass., to New York.

Celanese Corporation of America, Cumberland, Md., has awarded contract for construction of a new chemical plant in Bishop, Texas, to the Gasoline Plant Construction Co., Houston, Texas. Located on a 300-acre site, the plant is expected to cost approximately $5,000,000.

Franklin Needle Company, Franklin, New Hampshire, has been purchased by Walter F. Duffy. Mr. Duffy also controls Belmont Hosiery Company, Belmont, N. H., Acme Knitting Machine and Needle Company, Franklin, and George E. Duffy Manufacturing Company, Worcester, Mass.

Beaunit Mills, Inc., 450 Seventh Avenue, New York, has announced postwar expansion and improvement plans at its recently purchased mill in Rockingham, North Carolina. Considerable new machinery will be installed in the plant, which is the former No. 2 plant of Entwistle Cotton Mills.

Raycord, Inc., has been recently organized at Spartanburg, S. C., with capital of $120,000. V. M. Montgomery and Benjamin O. Johnson, both of Spartanburg, are president and secretary respectively. Early operation for the manufacture of cotton and rayon specialties is intended.

Princeton Knitting Mills, Watertown, Conn., have purchased American Mill Company at Waterbury. Tricot knitting machines will be set up as well as spinning equipment for yarn blends. Space to be occupied is approximately 175,000 square feet. Max Doft is president.

Tugees Hosiery Company has been incorporated at Greensboro, N. C., with $100,000 capital. Interest is held by Horace S. Hayworth, Owen Reese, and Ruth Rondeau, all of High Point. Offices will be at High Point.

Max Schiffman, president, and Alex Madans, treasurer, Ladifabrics, Inc., Pawtucket, R. I., have purchased Walnott Knitting Mills, Utica, N. Y. Operations of both companies will be consolidated in Utica.

Blackstone Webbing Company, Inc., Pawtucket, R. I., has been chartered with capital of $100,000 to operate a local mill. Textile webbing and kindred products will be manufactured.

P. K. Rug Company, Pawtucket, R. I., in addition to several hand looms, is installing 15 power looms to weave cotton scatter rugs. Joseph Priest is the proprietor.

Hathaway Manufacturing Company, New Bedford, Mass., has moved its New York office from Broadway near Franklin Street to 500 Fifth Avenue, corner of 42nd Street.

Loraine Knitwear Mills, Inc., has been chartered at Brooklyn, New York, with a capital of $20,000. The firm will operate a local mill for the manufacture of underwear.

The plant of Uxbridge Woolen Mills, Ltd., Uxbridge, Ontario, was largely destroyed by a recent fire. Loss was reported at approximately $125,000, but plans are to rebuild.

LaRee Fabric Mills, Inc., Auburn, Mass., has been chartered with capital of $100,000 to operate a local mill for production of yarn goods and fabrics.

Jack C. Turk Company, New York, has purchased the coarse yarn mill, including the mill village, of Buffalo Mills, Waco, North Carolina.

Incorporation has been announced of the Fountain Hill Underwear Mills, Fountain Hill, Pa.

The plant of Ace Woolen Mill, Norwich, Conn., was destroyed by fire recently. Plans are to rebuild at an early date.

Printing of Piecegoods

(*Continued from page* 101)

ing with a two-color design, say red and green. On the roller for the red, the plain portions and the figures corresponding to the green are painted out with bitumen. Likewise, on the green roller, the shapes to be red and the plain areas are painted out, always keeping in mind that a roller is processed as above for each color.

Each roller is then etched, resulting in an impression of the figures to be printed. Removal of the bitumen, washing with salt and acetic acid, and drying with alcohol completes the preparation of the roller.

The delicate printing effects produced with these rollers may be compared with rotogravure, and the function of the screens can be obtained by a microscopic examination of a specimen of the latter.

The rollers are now ready for the printing machine. However, they may advantageously be plated with chromium to give longer life and resistance to damage.

(The fifth installment in this series, to appear in an early issue, will deal with the printing process. Readers are urged to preserve their copies of all installments.—The Editor.)

New Publications of Textile Interest

National Cotton Council, P. O. Box 18, Memphis 1, Tenn., Supplement No. 1 to "Cotton Counts Its Customers", a new booklet showing changes in industrial uses and particularly directed to postwar planners. Most striking example cited of the effect of wartime demands on industrial uses is plastics, which occupied 26th place in 1939, consuming only 10,000 bales, and ninth place in 1942, consuming 83,680 bales.

C-O-Two Fire Equipment Company, Newark 1, N. J., "Recharging Instructions for Carbon Dioxide Extinguishers", a pocket-size illustrated edition with detailed drawings of the equipment required, and the procedure to be followed, in recharging company's system cylinders and portable extinguishers.

Emery Industries, Inc., 4308 Carew Tower, Cincinnati 2, Ohio, "Emery-facts", loose-leaf handbook on the derivation and chemical nature of fatty acids, their compounds, and several tables illustrating commercial applications. Special section on new aliphatic dibasic and low-molecular-weight fatty acids.

National Starch Products, Inc., 270 Madison Ave., New York 16, N. Y., "National Adhesives & Starch Products in Global Warfare", reproduction in color of 20 posters, prepared as part of an industrial relations program for display at company plants in Dunellen, N. J., Indianapolis, and San Francisco, as well as in Canada and England.

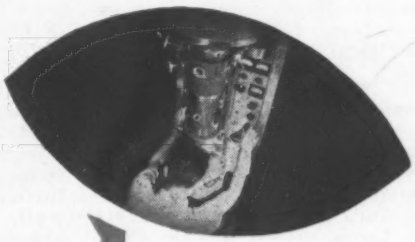
Policyholders Service Bureau, Metropolitan Life Insurance Company, 1 Madison Ave., New York 10, N. Y., "Some ABC's of Postwar Planning", basic outline of principles for postwar planning", including: establish the objective; assign the responsibility; define the scope; develop the facts; set up a timetable; prepare a formal plan; implement the plan; get started.

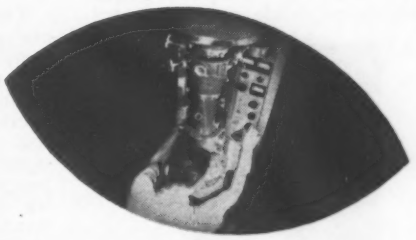
U. S. Department of Commerce, National Bureau of Standards, Washington, D. C., "Knit Underwear (Exclusive of Rayon), Commercial Standard CS33-43", 2nd edition, a recorded voluntary standard of the trade as established by a general conference of representative manufacturers, distributors, and users.

United States Testing Company, Inc., Hoboken, N. J., "A New World", an attempt to answer the question, "What science can do for us?", with particular reference to postwar planning. A two page section is devoted to textiles.

U. S. Department of Commerce, Washington, D. C. "Textiles—Testing and Reporting, CS59-44", effective February 20, 1944, a recommended revision.

three ways of looking at textiles





HERE are three instruments for delving into the inner mysteries of textiles which are in every-day use at Monsanto laboratories — an optical microscope, an X-ray camera and an electron microscope.

In the search for new ways to produce *better* textiles at *lower* costs, each is essential.

For example, you might be working with Monsanto's textile specialists toward a cotton fabric that will survive repeated laundering. Your basic problem, therefore, will be to prevent degradation of the cellulose fibres during chemical processing of your yarn and fabric so that they will not be easy victims to oxidation in the laundry.

For clues to the mechanical effect of your processing on a single fibre, we will go to the optical microscope. For clues to what may have happened to the basic molecular pattern of the fibre, we will want to check its X-ray diffraction pattern. Finally, for details of particles finer than fibres, we may find the electron microscope invaluable, with its ability to define objects as small as 1/5,000,000th of an inch in diameter.

It is out of lessons learned with just such basic research tools as these that tomorrow's harder-wearing, better-looking fabrics will come . . . which helps to explain why it pays *today* to work on *your* particular problems in partnership with a well-equipped team of textile chemical specialists like Monsanto's. MONSANTO CHEMICAL COMPANY.

Divisions cooperating in Monsanto's integrated research and technical service program for the textile industry: Organic Chemicals Division, St. Louis; Plastics Division, Springfield, Mass.; Phosphate Division, St. Louis; and Merrimac Division, Everett Station, Boston, 49. Inquiries should be addressed to Merrimac Division.

MONSANTO
CHEMICALS AND PLASTICS

The Textile
SERVING INDUSTRY . . . WHICH SERVES MANKIND

TIMELY NEWS ITEMS with a TEXTILE SLANT

Robert H. Hirsch has been appointed director of sales of **Bunting Brass & Bronze Company**, Toledo, Ohio, succeeding **George H. Adams**, recently named executive vice-president of the company. An authority on bearings and bearing applications, Mr. Hirsch had been connected with SKF Industries, Inc. for 25 years as district manager of the Detroit and Cleveland areas.

Robert R. Zisette, general sales manager, **SKF Industries, Inc.**, Philadelphia, has announced the appointment of Walter C. Ahlers as Detroit district manager, succeeding **Robert H. Hirsch.** Mr. Ahlers was formerly assistant district manager.

J. P. Lawrence, formerly vice-president and general manager, **American MonoRail Company**, Cleveland, has been made president, following the retirement of **H. M. Miller**, who is now chairman of the board. Other officers are F. C. Harris, vice-president and chief engineer; C. deV. Miller, vice-president and sales manager; J. L. Pishke, secretary and treasurer.

Mr. Lawrence

Donald M. Martin, formerly president of Aqua Sec Corporation, has recently joined the staff of **General Dyestuff Corporation**, with headquarters in New York. He will be in charge of sales of auxiliaries.

Gates Rubber Company has announced the opening of a new three-story warehouse at 605 West 5th Street, Charlotte, N. C., with a complete stock of industrial rubber products. The stock consists of all V-belts, textile belt hose, and molded rubber goods. The district engineering office of the company is also located in this new warehouse building, with its staff under the direction of R. A. Biggs, district manager.

Two new appointments in the switchgear and control division of the East Pittsburgh Works of the **Westinghouse Electric and Manufacturing Company** have been announced by R. A. Neal, division manager.

Herbert L. Rawlins, formerly assistant manager of circuit breaker and protective devices engineering, has been named manager of the protective devices engineering department. **A. W. Hill**, design engineer, has been made manager of power circuit breaker engineering. Both men are taking over some of the duties formerly performed by **L. R. Ludwig**, whose appointment as manager of the motor division has already been announced.

F. C. Michael, president, has announced that **Mill & Marine, Inc.**, Gastonia, N. C., contracting and electrical engineers, have opened a general repair shop in connection with their engineering business. They are now doing complete overhauling of electric motors, transformers, and other electrical equipment for textile mills.

Thomas Coyle, chlorine products manager, Electro-chemicals Department, **E. I. du Pont de Nemours & Company**, was elected president of Compressed Gas Manufacturers Association, Inc., at the January meeting. Mr. Coyle joined the Du Pont organization in 1930 when the company acquired the interests of Roessler and Hasslacher Chemical Company, with which he had been associated 26 years. He has been manager of chlorine products ever since.

L. R. Buckner, for many years connected with mills producing Textron products, has been named manager of the office opened by **Textron, Inc.**, at 52 Chauncey Street, Boston. He will be regional sales manager for Textron's New England district. Associated with him in the New England area will be **W. J. O'Donnell, C. Dunne**, and **E. C. Sharp.**

Devoe & Raynolds Company, Inc., has announced that the de Lancey Kountze branch prize for 1943, for excellence in management, has been awarded to the company's Denver branch, of which **Walter Ramer** is manager. The Cincinnati branch of the company, of which **Clayton Rinderknecht** is manager, was runner-up for honors.

Edward F. Connelly, formerly associated with the Federal Trade Commission, has become assistant to John F. Tinsley, president and general manager, Crompton & Knowles Loom Works, Worcester, Mass.

Pennsylvania Salt Manufacturing Company has moved its New York office to 40 West 40th Street, New York 18, N. Y. The New York office is headquarters for two of the company's sales districts, one headed by **F. G. Rodenburgh**, and the other by **C. A. McCloskey.**

Walter A. Hamilton, comptroller, **Aridye Corporation**, Fairlawn, N. J., and **Edward W. Westhead**, assistant treasurer and auditor, **American Viscose Corporation**, Wilmington, Del., have been elected to membership in the Controllers Institute of America.

Ernest Nathan, president, Warwick Chemical Company, West Warwick, R. I., announces that the company has received registration of the name "Norane" for its new repellent, formerly known as "Waroopel".

National Starch Products, Inc., gave testimony to the splendid safety record of its Dunellen plant employees at a dinner recently at the Park Hotel, Plainfield, N. J. Ten departments were awarded safety banners for a perfect record during 1943, and the entire staff was complimented for its 84 per cent overall reduction in man-hour losses through accidents. **Frank Greenwall**, company president, made the presentations, and **A. G. Bugenstock**, director of health and safety at the Kearney plant of Western Electric Company, was principal speaker. Other speakers included **A. L. Pulfrey**, factory manager, **R. H. Johnson**, plant personnel manager, and **Dr. T. A. Langlie**, director of company personnel.

More "E" Awards to Textile Plants

Textile manufacturing plants, and concerns serving the textile industry, receiving the Army-Navy "E" award for excellence in war production (in addition to those previously reported here) include the following:

Chipman Knitting Mills, Easton, Pa. (January 27).

Anchor Duck Mills, Rome, Ga. (February 3).

Nashua Manufacturing Company, Bower Division, Lewiston, Maine. (February 21).

Burkey Underwear Company, Hamburg, Pa. (February 15).

Lion Knitting Mills Company, Cleveland, Ohio. (February 15).

Parker High School

(*Continued from page* 89)

to operate the machines—knew more about how to get along with their bosses and fellow workers, because they had been getting along with teachers, who had treated them as bosses would, and with their fellow workers (students) under actual working conditions. They were more familiar with the history, development, and importance of their industry and had a better idea about how an industrial enterprise is organized and financed. Upon graduation, the vocational students receive the regular state high school diploma and can, if they wish, go on to college. However, we do not encourage students—who think they are going to college—to take our courses. We feel that they should take college preparatory courses instead.

(In the second and concluding article, to appear in the April issue, Mr. Greet will deal with adult education and "up-grading" courses).

This Label Means

--Smoother Performance Higher Quality Yarn

Briefly, "Dynamically Balanced" means: cylinders are in perfect balance throughout their entire length. Unlike static balancing, which is the method most commonly used, Jenkins' newly developed "Dynamic Balancer" not only designates how much weight is required but exactly where it is needed. This enables the weight to be distributed *dimensionally* rather than being placed on one end or the other, which is the principle of static balancing and often results in more harm than good.

At no additional cost to you, every twister or spinning cylinder made or rebuilt in our shop today is tested on our newly developed Dynamic Balancer, to insure perfect balance at speeds from 800 to 1200 R.P.M.—then pretested up to 3000 R.P.M. to allow for increased speeds.

When a frame is fully equipped with these quiet, smoother-running "Dynamically Balanced" cylinders—strain, friction and vibration are reduced to the vanishing point; wear on cylinder head bores, journals, travelers and rings is reduced to a minimum; yarn flows freely and smoothly, resulting in even, uniform quality.

Write for new service folder.

JENKINS
METAL SHOP
GASTONIA, N. C.

Manufacturers of COMBER TINS • LAP APRONS • ASPIRATORS • SLIVER PANS

COMMENT on the COTTON MARKET

New Orleans, February 16, 1944

COTTON PRICES climbed slowly during the past month without any marked gain until the second week of February, when a large amount of price fixing against spots developed in the futures market, and spots and the nearby delivery months rose to new high levels for the season. On this advance the average for Middling 15/16 was quoted February 16 at 20.88. The highest recorded during 1943 was 21.43 on April 1. The new crop months were inclined to lag, or even to react on some days, but finally joined in the upward movement. Planting has begun in the Rio Grande Valley.

The stimulating and uplifting influences were: tight conditions in spots and in the March option; statement from Senator Bankhead that he had assurances from the New York Cotton Exchange that a ceiling would not be placed on March futures; and purchase of 332,000 bales of cotton by the FSCC for export under the Lend-Lease Program. There was also a rise in the ceiling for some textiles and expectation of more increases. In addition, WLB ordered mills which make sheetings to increase their output to peak levels in order to meet civilian demands. There were also rumors of possible similar orders in other lines. The rise of 13 points in the January parity to 20.96 and advance of an equal amount in the selling price of CCC to 20.20 in the Carolinas were other factors of importance. Legislative developments at Washington were slow and had no visible effect.

The tightness of March was due to the large amount of unfixed spot call sales based on that month. These unfixed sales exceeded the open interest in March, New York. In addition, there was considerable cotton hedged in that month, which had to be lifted or transferred. The demand from these two sources often exceeded the supply, and higher prices were inevitable. There is still a considerable open interest in March as this is written. First notice day for that option is February 24, and certified stocks available for delivery amount to only 8,385 bales.

The large amount of price fixing in the May option was another factor of importance in the advance. Early in February the FSCC asked for offers of 332,300 bales for export under lend-lease. Prices on all cotton accepted were to be fixed on May, and the awards were scheduled to be made not later than February 15. Offers came from 69 firms, many of whom are reported to have bought futures in advance of the awards as a means of fixing prices on what they hoped to sell. Offers of nearly a million bales are reported to have been made by spot firms. The FSCC accepted offers on 332,000, but prices paid have not been made public as yet. The bulk of the purchases are said to have been made from a few large firms. Many of the firms, whose offers were not accepted afterwards, resold some of their futures, thus causing a small setback in the market.

The New York Cotton Exchange estimates the cotton in this country as of January 1 at 16,907,000 bales, compared with 18,068,000 a year previous. Government owned or controlled stocks at that time were estimated at 7,170,000 bales and free stocks at 9,737,000. A year ago government stocks amounted to 5,854,000, while free stocks totaled 12,214,000. Some authorities estimate that 6,650,000 bales will be needed for domestic consumption and exports during the remainder of the season, if there is no great increase in either, and that this will leave only 3,195,000 bales of free stocks at the end of the season, including mill stocks. This is compared with 5,626,000 at the end of the previous season. This calculation is based on the theory that withdrawals from the loan during the remainder of the season will equal new entries.

The latest available report from the CCC shows loans on the 1943 crop to February 5 amounted to 3,131,749 bales and withdrawals 18,624. A year ago, loans on the 1942 crop amounted to 2,390,900 bales and withdrawals to 25,213. However, withdrawals from the 1942 loan since August 1 are given officially at 339,000 bales, and loan stocks of cotton from that year are estimated at the end of January at 1,219,000 bales. Loan equities are in good demand, and the selling price has about doubled in recent weeks. The current price for equities ranges from $5.00 to $6.00 a bale.

CENSUS REPORT OF COTTON CONSUMED AND STOCKS

Consumption of Lint— Bales—	This Season	Last Season
In United States, January	819,489	916,785
In United States, December	852,018	935,870
In United States, 6 months	5,096,896	5,623,308
In Cotton Growing States, January	729,237	769,973
In Cotton Growing States, 6 months	4,470,287	4,870,181
In New England States, January	70,302	95,804
In New England States, 6 months	485,885	599,458
In All Other States, January	19,950	24,008
In All Other States, 6 months	134,724	153,669
Mill Stocks—		
In United States, January	2,377,580	2,495,764
In United States, December	2,400,170	2,549,911
In Cotton Growing States, January	2,050,481	2,091,862
In New England States, January	261,537	329,018
In All Other States, January	65,562	74,884
Warehouse Stocks—		
In United States, January	12,120,148	13,069,529
In United States, December	12,642,909	13,573,163
In Cotton Growing States, January	11,894,050	12,787,994
In New England States, January	189,589	265,226
In All Other States, January	36,509	16,309
Active Cotton Spindles—		
In United States, January	22,217,994	22,935,012
In United States, December	22,596,322	22,923,406
In Cotton Growing States, January	17,380,158	17,463,960
In New England States, January	4,301,388	4,875,786
In All Other States, January	536,448	595,266

A Review of the Cotton Waste Market

Boston, February 17, 1944

VOLUME orders are still lacking in the cotton waste market. Business is light except in some of the specialties. Dealers are not pressing any stock for sale, and some of them find their chief activity in taking care of contracts already in hand. In continued strength the market is reflecting the diminishing supplies in various places and the continued rise of cotton into new high ground. In the strip stocks a little of everything is selling, from white vacuum up to peeler strip. Comber is firm but there is not much doing. Mattress and upholstery stocks continue inactive.

If cotton continues its upward move, higher rates seem inevitable on all good wastes. Consumers meanwhile are showing more interest, and their inquiries are more specific and less general in character. The rise in cotton favors wastes. About this there can hardly be two opinions.

Peeler comber and spot cotton at time of writing are at new highs, the spot at 21.39 cents and its by-products at 14.00 cents. The turnover in the market is far from large, and this is true also of supplies held by dealers. Nevertheless, cotton wastes are still ringed around by consumer indifference. Traders will wait out the situation and are not inclined to force business by the offering of wastes at concessions at a time when cotton seems in a definitely upward trend.

Prices very generally are on a slightly higher selling level, not because of demand, which is poor, but by reason of a general scarcity of stocks of good wastes held by dealers here. Cotton and its wastes are at the high price of the year, and what the next turn will be is something on which few care to hazard an opinion.

Dealers feel in a good position to carry on their buying and selling of wastes with persistence and good will. At this time, wastes used in the upholstery industry and by-products for the woolen division of manufacture respond only slowly to the more promising situation. Though consumers continue to purchase from hand to mouth, the volume in strip stocks indicates some gain in confidence. Woolen mills more recently are sampling a little peeler comber and peeler spinner. At the thread end of the market, machiners of wiping waste are looking around for bargains on their purchases. Something like a squeeze is reported in the local market, the only real laggards found in picker and fly where the demand is in seasonal lull. Reduction in waste output, following long weeks of strike in Fall River, has had its effect on dealers' supplies, which are now at an unusually low point.

A CLOSER SCRUTINY WILL REVEAL

That all your stainless steel requirements are listed here in this, well illustrated hand book which should be available to every Purchasing Agent and Master Mechanic.

FURTHERMORE—

all of these listed stainless steel items are available in stock—from

"The Specialists in Stainless Steel"

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R. E. MASON
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Charlotte, N. C.

*COLOR...

TIDE WATER LUBRICANIA

DEFINITION: For practical purposes, the color of an oil is expressed as a "number" which is determined by matching the light transmitted through a pre-determined depth of oil with that same light transmitted through numbered and standardized glasses or disks.

EXPLANATION OF TESTS USED. The American Society for Testing Materials have selected two instruments for determining the color of petroleum products. These instruments are:

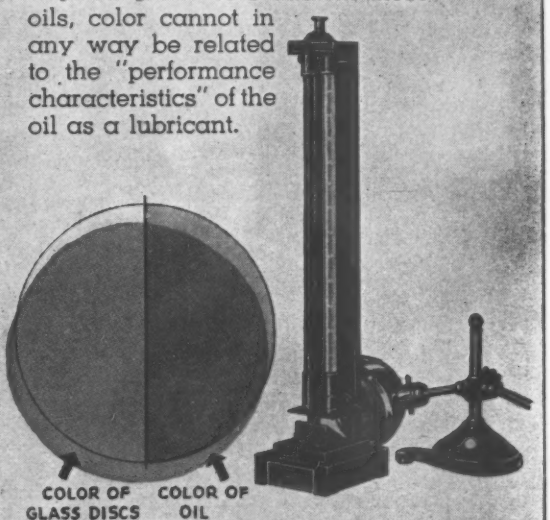
(1) **The Saybolt Chromometer** for making color determinations on the lighter oils.
(2) **The Union Colorimeter** for determining color on the "pale-straw" and darker products.

THE SAYBOLT CHROMOMETER consists of two vertical glass tubes. One of these tubes is of plain glass, open at both ends with provision for holding one or two colored glasses or disks at the lower end. The other tube is closed at the lower end with a colorless plate and is provided with a drain cock. This tube is graduated. A mirror reflects light through the oil and the tubes into an optical prism-eye piece for matching the light passing through the oil with the light passing through the disks. The color scale for light oils varies from minus 16 to plus 30.

THE UNION COLORIMETER. In the Union Colorimeter the N. P. A. or A. S. T. M. color of the oil is obtained by matching one of a series of fixed color standards against a sample of oil. The comparison is observed through a circular aperture at the end of a long rectangular box. The color standards are mounted at one end of the box in a vertical magazine which may be moved up and down by means of a knurled hand knob operating a ratchet and gear.

The method used for matching colors on both the Saybolt Chromometer and the Union Colorimeter follow a carefully prescribed procedure outlined under A. S. T. M. Designations D156-38 and D155-39T respectively.

SIGNIFICANCE: Color is of importance in the case of certain light petroleum fractions, particularly products used in dry cleaning or in the textile industry, where the use of colored products might discolor the fabric being treated. The chief significance of color as applied to the darker oils is in the fact that it is a generally accepted index of the uniformity of a given grade or brand. In these oils, color cannot in any way be related to the "performance characteristics" of the oil as a lubricant.



COLOR OF GLASS DISCS — COLOR OF OIL

INDUSTRIAL TYCOL OILS-GREASES

DRUMS! DRUMS! DRUMS!
War needs make it extremely important that all empty drums be returned immediately.

SCIENTIFICALLY ENGINEERED FOR EVERY INDUSTRIAL USE TYCOL

* This is the 8th of a series of informative messages concerning the meaning and significance of commonly used tests and terms employed to describe the characteristics of lubricating oils.

All Tycol oils and greases are subject to rigid tests to control the uniform quality of manufacturing. They are manufactured in a comprehensive line so as to meet every specific operating requirement. It is the combination of the unvarying high quality of Tycol products and the scope of the line that makes possible the unexcelled performance of Tycol lubricants for Industry.

TIDE WATER ASSOCIATED OIL COMPANY

MAKERS OF THE FAMOUS VEEDOL MOTOR OIL • Eastern Division: 17 Battery Place, New York 4, N. Y.

Principal Branch Offices: Boston, Philadelphia, Pittsburgh, Charlotte, N. C.

INDUSTRIAL LUBRICANTS

Ammonia Containers Badly Needed

Last fall, Mathieson Alkali Works, Inc., New York, urged all chlorine users to keep their cylinders in operation by returning them promptly as soon as emptied.

Now comes word that users of ammonia are also being urged to keep returnable containers in circulation. Ammonia is contributing to the war effort in such vital fields as munitions manufacture, metal treatment and welding. Furthermore, agriculture depends on ammonia to produce fertilizers for growing the food stuffs which refrigeration engineers in turn help preserve through further use of ammonia.

War has necessitated complete government control of ammonia, and government financed ammonia plants have been built and put into operation to supply military requirements. This has lightened the burden on industrial producers, who now have the capacity to take care of their customers.

However, through carelessness or hoarding, there may not be enough cylinders or drums for transporting the chemical. It is believed that there are enough cylinders in circulation at the present time to take care of all users *provided* containers are kept in circulation.

All users of ammonia are urged to return their containers for re-filling as quickly as possible and are requested to order in quantities for immediate requirements only.

◆

Government Textile Needs for 1944

"Surveying the probable textile and apparel requirements of Government purchasing agencies during 1944," states the *Textile Organon*, "it appears that these are likely to approximate the 1943 purchases with the one exception of wool fabrics. The latter reduction is due largely to the decrease in Army woolen needs resulting from the final completion of the overcoat stockpile and the removal of the wool lining from the jacket. As a result of these reductions, it is expected that purchases of woolen and worsted fabrics may drop by 35 to 40 per cent, according to one trade paper estimate."

◆

Arkwright Club Elects Harry Hoffman President

Harry C. Hoffman, Reeves Bros., Inc., was elected president of the Arkwright Club, New York, at the annual election of officers January 3. Formerly vice-president, Mr. Hoffman succeeds W. P. Fickett, president, Textile Fabrics Association, who has been made chairman of the Affiliations Committee.

NEW EQUIPMENT and MATERIALS

New Strap Wrench

Ridge Tool Company, Elyria, Ohio, has designed a new strap wrench intended to aid handling and protection of polished nickel and chrome pipe and tubing. Made with a strong I-beam handle and solid head, all in one piece, the tool is said to permit easy attachment and use as well as to be positive in grip. The special webbing strap is removed for replacement by pushing out pin held by spring clips. Available in two sizes: No. 2, capacity ⅛-inch to 2 inches, 17-inch strap; No. 5, 1-inch to 5 inches, 30-inch strap.

◆

New High Speed Motor by General Electric

General Electric Company has reported building and testing of an electric motor which operates at 120,000 revolutions per minute. The motor was developed for application to internal grinding machines used in finish grinding small holes, many less than ¼-inch in diameter. Although the motor will not be available for general use until after the war, another possibility for its use is in driving small drill chucks for drilling tiny holes in soft metals, using drills 1/32-inch in diameter and less.

According to F. W. Baumann and D. H. Ware, General Electric motor engineers, the surface speed required to produce a high-grade finish economically by grinding should be about the same whether grinding a large or a small hole. A medium size wheel rotating at a moderate speed gives the requisite surface speed, but for small holes, only a tiny grinding wheel can be used; hence the high rotating speed is necessary.

With normal voltage applied at 2000 cycles, the new motor is reported to reach full speed in less than a second. Rated at 3 hp. and weighing seven pounds, it is so small as to fit into the palm of a person's hand, and the rotor is scarcely larger than a man's thumb.

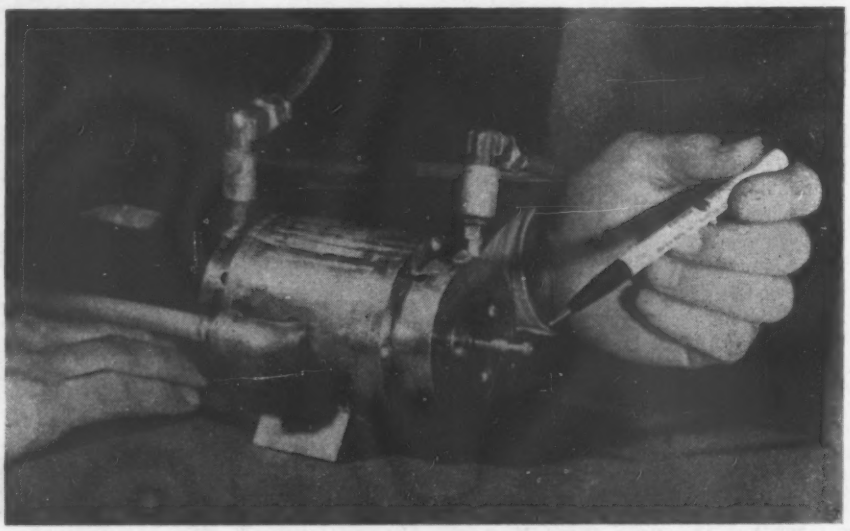
The motor is reported to have successfully passed tests at 120,000 rpm., including eight-hour continuous runs at rated horsepower, as well as grinding tests with a tiny grinding wheel mounted directly on the motor shaft.

◆

Compressor Control

Johnson Corporation, Three Rivers, Michigan, has developed a new compressor control, designed to protect water-cooled compressors against the damaging overheating that results if operated without cooling water. It is intended at the same time to prevent unnecessary and costly waste of water. By permitting the compressor to operate only when water is actually flowing through it, the control guards against failure of water supply from the usual causes and is said to permit the safe use of automatic water cut-off valves.

The new control consists of a sight flow fitting, mounted in the water discharge pipe of the compressor, which serves as a holder for a metal electrode. When pressure in the receiver falls blow the predetermined level, the pressure switch on receiver opens a



How Can an Army Truck Influence Textile Dyeing?

LOOK AGAIN at the next army truck you pass—a drab and somber looking paint job protects its robust hide.

Stop and consider the wherefor of that paint job. That color is not a matter of accident or economy—it's O.D. camouflage paint made especially to blend with the surrounding terrain, and it possesses a special virtue—its infra-red reflectance characteristics match, within close limits, those of nature's foliage.

The research and application laboratories of Calco have spent much time and effort in the development of dyes and pigments for this purpose, and have thus acquired a fund of knowledge on the science of camouflage.

The scope of study devoted to the chemistry of color in these laboratories is, we believe, unrivaled in the dyestuff industry. Now answering pressing war problems, these laboratories also continue to serve their civilian function.

Textile dyers have long been familiar with the practical application of this research through Calco Technical Bulletins. These studies and applications are endless.

With an eye to converting recent developments to postwar civilian use . . . our laboratories are studying completely new lines of dyes and technics for their application. They will re-define present standards for fastness to sun and cleaning. That's just one phase of Calco activities for its textile customers. We'll report each development as it's ready . . . for you.

P. S. FOR TEXTILE PRINTERS:

If you are printing acetate fabrics by roller or screen, you will find that Calco has excellent colors for your line. Among them are: Calconese Brilliant Orange 5R, Scarlet GC, Red GG, Bordeaux Extra, Yellow GC, Brilliant Scarlet BN.

Calco Chemical Division
American Cyanamid Company

BOUND BROOK, N. J.

CHICAGO • NEW YORK • PHILADELPHIA • BOSTON
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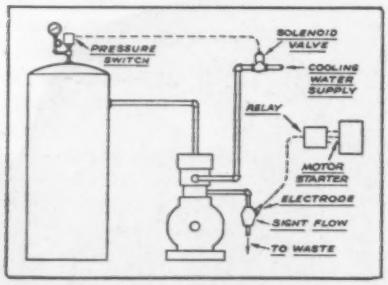
solenoid controlled valve to admit cooling water to compressor. Compressor is not started until water flows through it and into the sight flow, completing circuit with the electrode. If



for any reason the water supply fails, compressor will not be started.

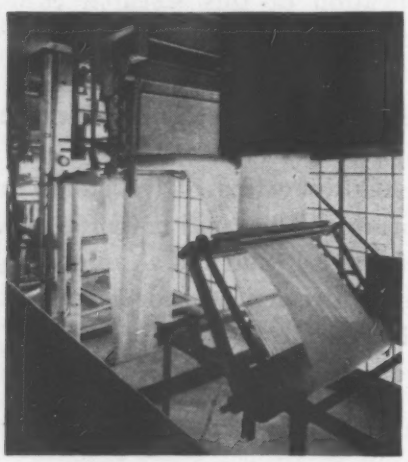
The new Johnson compressor control is designed for use on compressors of all sizes and is said to be completely automatic.

◆

Butterworth Announces 6-Roll Washer

H. W. Butterworth & Sons Company reports development of a 6-roll washer, said to be equivalent to a 4-compartment washing machine. It consists of top and bottom rubber covered rolls, 14 inches in diameter by 50 inch face, and four intermediate rubber covered rolls, 8 inches in diameter.

The cloth passes through a three-bar expander with a hot spray in front of the first nip. Before and after entering each succeeding nip, the cloth passes around the fly roll, the position



of which causes the liquor to puddle in front of each nip by means of a hot spray. The cloth is sprayed with hot water on both sides as it goes around the fly roll.

The machine is equipped with a stainless steel liquor box for catching the wash liquor. Because of contamination of the water, the cloth is kept from dipping into the liquor. The washer also contains stainless steel splash pans with doors that allow access to the machine on the entering and delivery sides.

New Combustion Control Equipment

A new system of combustion control has been developed by Leeds & Northrup Company, Philadelphia, for use in smaller industrial and municipal power plants. Applicable to boilers fired with coal, oil or gas, this system, known as Type P, is designed to proportion fuel and air continuously to steam demand and at the same time to control furnace pressure.

To regulate fuel-feed and draft (either forced or induced), the system provides an electrical balance on the Wheatstone Bridge principle by which the settings of valves, dampers or vanes are varied in proportion to steam demand as directed by a master controller. The remaining draft damper or other device is simultaneously regulated by the furnace pressure controller.

Independent operation of drive units allows the controllers to be serviced without interrupting boiler operation. Except for drive units, all equipment can be shipped on a panel ready to install. Or, the equipment can be mounted on a complete boiler panel—along with draft gauges and other instruments. Drive units are connected to panel by simple conduits.

"Lighting Handbook" Issued by Westinghouse

Because of the demand for information on wartime lighting, Westinghouse Lamp Division, Bloomfield, N. J., has issued a 175-page *Lighting Handbook*, originally scheduled for release after the war. Designed as a practical guide and working reference book for lighting engineers, designers, architects, and builders, the volume on lighting was prepared by the company's illuminating engineering department.

The handbook includes a series of charts which co-ordinate room index, fixture efficiency, and coefficient of utilization curves and provide a new method of determining the desired illumination for various applications. The charts cover industrial and commercial fluorescent and incandescent lighting and provide a means of calculating quickly the number and size of lamps needed with practically every type of lighting fixture.

◆

Principles and Practice of Flow Meter Design

The Foxboro Company, Foxboro, Mass., has published "Principles and Practice of Flow Meter Engineering", by L. K. Spink, in a new and enlarged edition, the sixth since the book was first published in 1930. It contains 232 pages, is illustrated with photographs, diagrams and curves, and contains all of the tables and formulae needed for any ordinary liquid or gas flow computation. The price is $3.00 per copy and may be secured from the Foxboro Company or through COTTON's book department.

Additional Personal Items

(*See also page* 126)

WILLIAM E. SCHMOTTLACKE, for 19 years with Farwell Bleachery, Lawrence, Mass., is now in charge of raw stock and piece dyeing at Nashua Manufacturing Company, Nashua, N. H.

ERNEST JOHNSTON has been promoted to assistant superintendent of the Stevenson, Alabama, plant of Avondale Mills. He was formerly located at Sylacauga, Alabama.

J. M. BRINDLEY, formerly superintendent, is now general manager of Cluett Peabody, Inc., North Grosvenor-Dale, Conn. He succeeded George V. Meehan, resigned.

V. D. GUIRE, a director of Steele Cotton Mills and of Lenoir Cotton Mills, has been elected president of Union National Bank, Lenoir, N. C.

WILLIAM STELZNER, since 1916 superintendent of The Saxony Corp., Norwich, Conn., is now general manager, succeeding the late Charles Ray.

GEORGE H. WALKER, for 11 years with Suncook Mills, Suncook, N. H., now a division of Atlantic Rayon Corp., has resigned.

Obituary

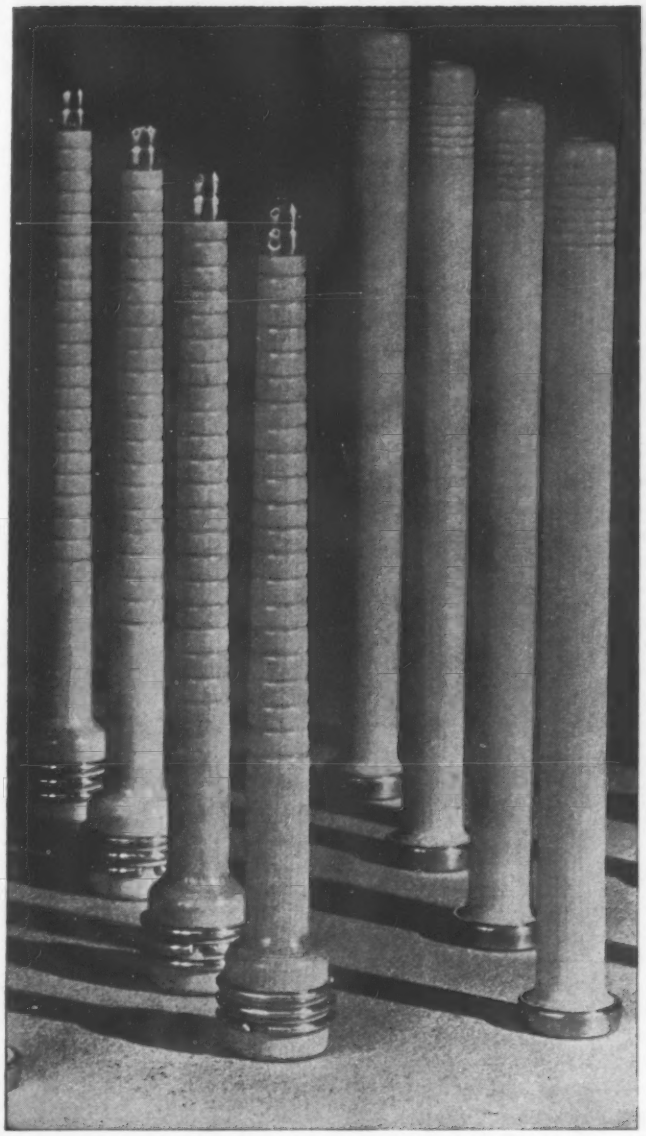
A. HOKE HUSS, 67, for many years a director of Rhyne-Houser Mfg. Co., Cherryville, N. C., died January 27 at a hospital in Gastonia, N. C. He was formerly secretary-treasurer and manager of Howell Manufacturing Company, which he and his brother-in-law, Dr. A. W. Howell, had organized.

JOHN WALTER KRANTZ, 66, superintendent, Marshall Field finishing mill, Spray, N. C., died recently of a heart attack. He had been connected with the local textile industry for 40 years.

H. C. ABERLE, 67, retired official of Aberle, Inc., Philadelphia, and connected with the hosiery manufacturing business for 45 years, died January 20.

JAMES H. MCMAHON, 83, connected with Mathieson Alkali Works, Inc., for 40 years, died February 7 at his home in Buffalo, New York.

O. F. BENTON, superintendent, Cowikee Mills, Eufaula, Olabama, died January 26.



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Henry H. Hersey
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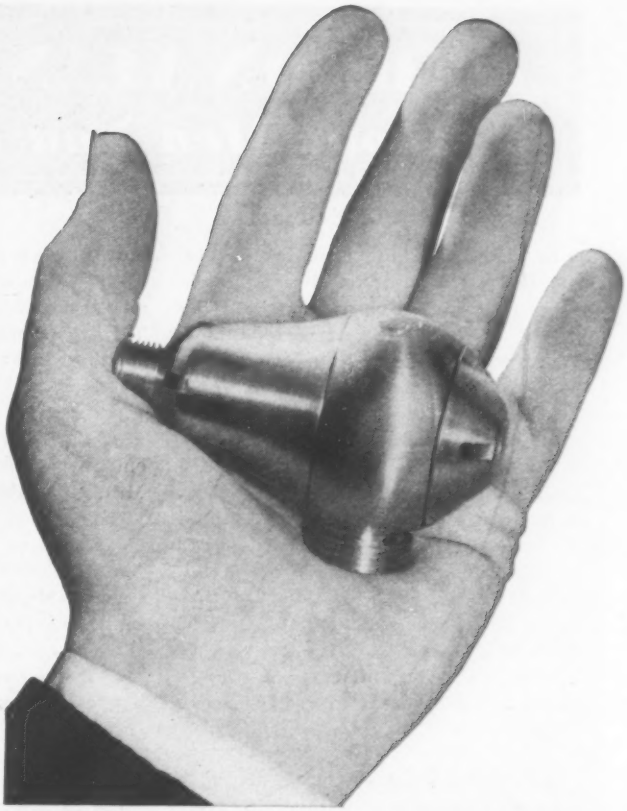


The Reliable Atomizer

Looks like a sweet potato partly for streamlining, so as not to catch lint; partly to make it *diaphragmatic.*

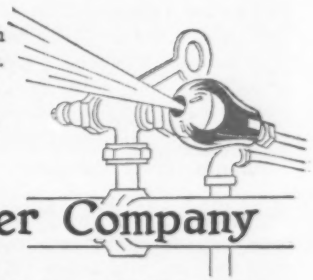
After hard and continuous mill service, orifices in the self cleaning

Parks Turbomatic Humidifier

still remain normal in size, shape, and alignment—also in action.

Rated conservatively. No double standards; one for our laboratory—one for your mill.

Interchangeable with earlier Turbo models.



Parks-Cramer Company

Fitchburg, Mass. Boston, Mass. Charlotte, N. C.

PERSONAL NOTES
About Men You Know

EDWIN C. SPEIR, formerly manager, Ashland Corp., Jewett City, Conn., is now assistant vice-president of the parent company, United Merchants & Manufacturers Corp. He is in complete charge of the spinning and weaving activities of all the company's mills in the United States and Canada.

THOMAS J. CULPEPPER, formerly with Eagle & Phenix Mills, Columbus, Ga., is now production manager of Ashland in Jewett City. He succeeded Oscar Marc-Aurele, who is now superintendent of weaving at Associated Textiles of Canada, Ltd., Louisville, Quebec. Both the Connecticut and the Quebec concerns are subsidiaries of United Merchants & Manufacturers Corp., New York.

Recently elected and re-elected officers of Clinchfield Manufacturing Company, Marion, N. C., are as follows: W. L. MORRIS, Marion, president and treasurer; H. M. LESLIE, New York City, vice president; T. V. ELLIS, Marion, secretary and assistant treasurer.

The directors are: J. WALLACE WINBORNE, Marion and Raleigh, board chairman; H. V. BRUMLEY, H. M. LESLIE, FRANK H. LESLIE, J. T. RICH, MORRIS ROSENWASSER and R. D. SCOTT, New York City; E. P. CAVE, St. Louis; MAJOR I. H. R. GENET, Washington, D. C.; W. R. CHAMBERS, J. WILL PLESS, JR., and SAM M. YANCEY, Marion.

Seven textile executives in Greenville, S. C., have been re-elected to boards of Greenville banks. They include: First National: S. M. BEATTIE, president, Woodside Cotton Mills Company; J. E. SIRRINE, J. E. Sirrine & Company; F. W. SYMMES, president, Union Buffalo Mills Company; W. H. BEATTIE, vice-president and treasurer, Woodside Cotton Mills Company.

Peoples National: SYDNEY BRUCE, president, Camperdown Company; C. E. HATCH, president, Brandon Corp.; EARLE R. STALL, president, F. W. Poe Manufacturing Company.

WADE P. STOWE, superintendent, Crescent Spinning Company, Belmont, N. C., was presented the gold key award at the annual Founder's Day banquet of the Belmont Junior Chamber of Commerce. This award is given annually by the United States Junior Chamber of Commerce to the man in each community who has contributed the most in civic achievement and community service during the year. The award was presented by Rex Edison, president of the Gastonia Junior Chamber of Commerce.

J. E. REEVES, formerly superintendent, Woodruff (S. C.) plant of Mills Mill, Greenville, S. C., has been made vice-president of the company and will be located in Spartanburg. Succeeding him is FRANK CUNNINGHAM, and succeeding Mr. Cunningham is W. P. IRWIN. Mr. Cunningham had been superintendent at Mills Mill, Greenville, and Mr. Irwin had been superintendent of Warrior Duck Mills, Spartanburg, S. C.

DENNIS T. NOONAN was re-elected president of Berkshire Woolen Company, Pittsfield, Mass., for his 31st consecutive one-year term at the recent annual meeting. Other officers re-elected were: WESLEY V. E. TERHUNE, New York, vice-president; HARDIN W. WHITNEY, secretary; WALTER G. W. JOSSELYN, assistant treasurer; DENNIS T. NOONAN, treasurer. Directors are T. D. RODDY, STANLEY F. CLARKE, and LAWRENCE R. CONNOR.

FRANK J. MULCARE, associated with Lorraine Manufacturing Company, Inc., Pawtucket, R. I., for 25 years, has been appointed assistant to J. R. MacColl, Jr., vice-president, with sales offices at 261 Fifth Avenue, New York. Mr. Mulcare will be concerned primarily with the styling, merchandising, and sales policies of the worsted division. R. H. Dodge continues as head of the women's department.

WILLARD F. STAPLES has been elected executive vice-president and a director of Esmond Mills, Inc., Esmond, R. I. He had been a vice-president of Esmond and previously was general manager of Cabot Manufacturing Company. ARTHUR TINKER was elected vice-president and sales manager of Esmond Mills at the same directors meeting. All other officers were re-elected.

Recent changes at Cliffside Dyeing Corp., Paterson, N. J., include the election of IRVING MAZIROFF as vice-president and WALTER MUELLER as assistant secretary. A. VAN HOUTEN continues as president, and G. MEIER as treasurer. Mr. Maziroff is also New York sales representative, and Mr. Mueller is plant superintendent.

RICHARD W. ARRINGTON, head of Union Bleachery, Greenville, S. C., was elected president of the National Association of Finishers of Textile Fabrics at a recent meeting in New York. He succeeds W. RALPH MACINTYRE of Joseph Bancroft and Sons Company, Wilmington, Delaware.

L. R. BUCKNER, for many years associated with mills now controlled by Atlantic Rayon Corp., has been made manager of the Boston office, at 52 Chauncey Street, of Textron, Inc., subsidiary of Atlantic Rayon Corp. and handling its sales.

KENNETH CARROAD, attorney and accountant, has been elected one of three trustees as well as secretary of Columbia Narrow Fabrics Company, Shannock, R. I. He is also a director and secretary of Peace Dale Braiding Company, Shannock.

D. B. SUMMER is now superintendent at Piedmont Cotton Mills, Egan, Georgia. Mr. Summer was formerly connected with Riverside and Dan River Mills, Danville, Virginia. He succeeds L. E. LANE, resigned.

S. V. WILKING, formerly personnel manager, Kerr Mills, Fall River, Mass., is now assistant vice-president of Hathaway Manufacturing Company, New Bedford, Mass. He is in charge of spinning and weaving activities of all the company's mills.

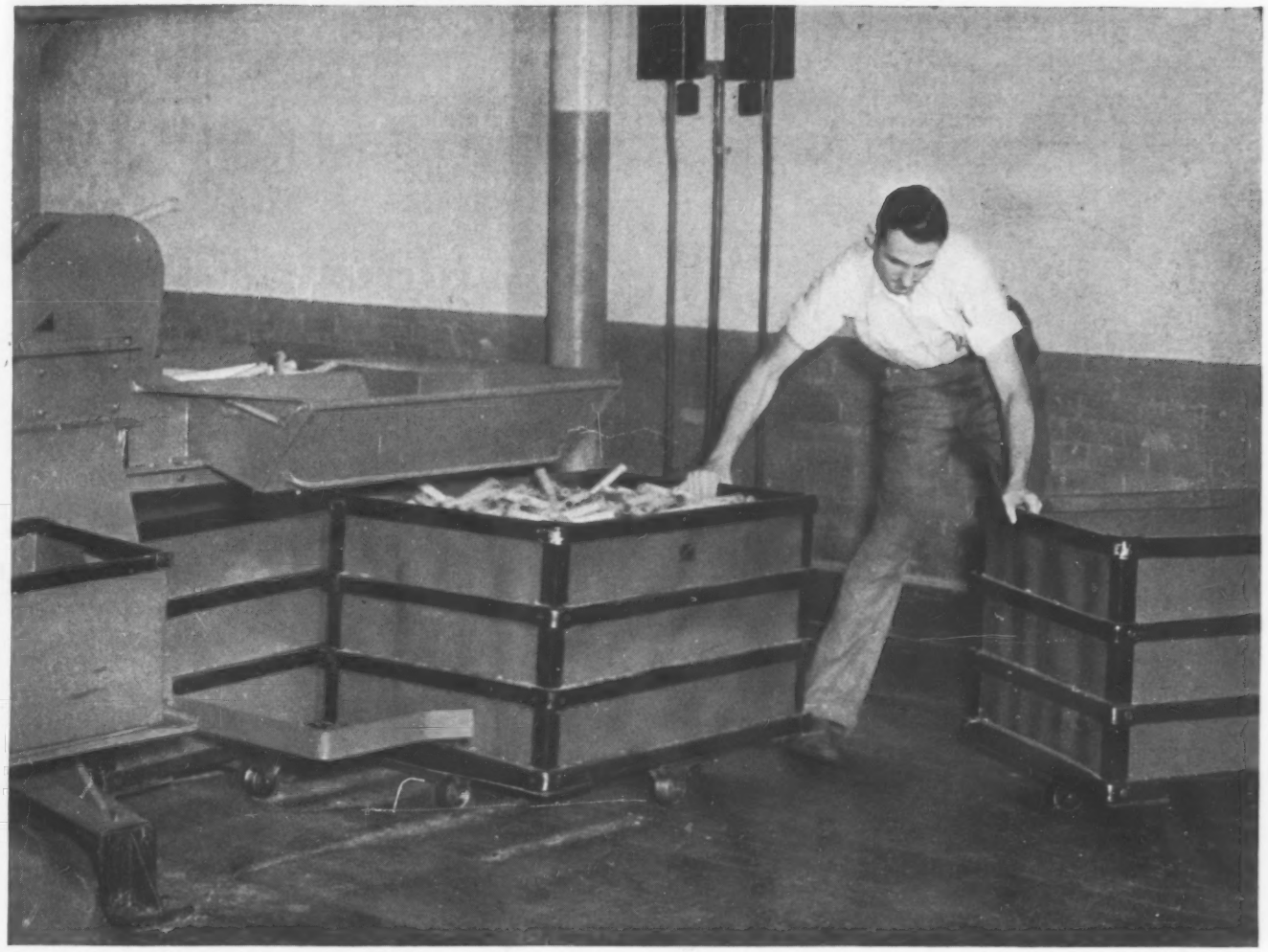
LOUIS FLOMENHOFT, office manager, Arms Textile, Inc., Manchester, N. H., functioned as chairman of the industrial division of the Manchester War Finance Committee for the Fourth War Loan campaign.

TORREY M. TYNER, formerly assistant superintendent, Stonecutter Mills, Inc., Spindale, N. C., has been made a lieutenant (j.g.) in the U. S. Navy. His successor at the mill has not been announced.

At the annual meeting of the Wellington Sears Company, held in Boston, February 15, HARRY L. BAILEY, former president, was elected chairman of the board, and CHARLES A. SWEET was elected president.

J. E. CARTER has resigned as overseer of carding and spinning at Barbara Mills, Salisbury, N. C., to become night superintendent of the Pickett Cotton Mills, Inc., High Point, N. C.

(*Additional personals and obituary items on page* 124).



Time-Savers for Bobbin-Handling

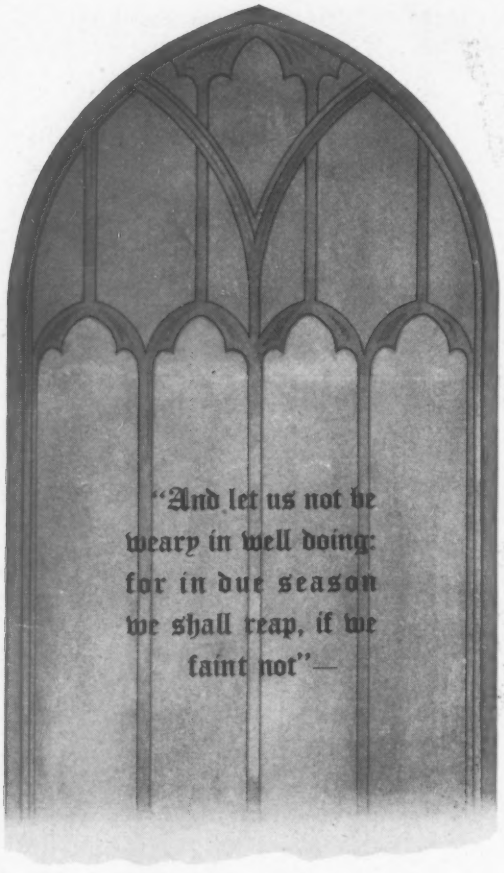
EACH Barber-Colman Automatic Spooler has a sorting table to which empty bobbins, tailings, and strips from the pockets are delivered automatically by a conveyor. This table is large enough so that the spooler girl can easily and quickly pick out the tailings and strips. It is at convenient working height so no stooping is necessary. Having picked out all bobbins that can be re-run, she opens a flap on the front of the table and the empties slide into a large bobbin truck set under the table. When this truck is full, it can be quickly pulled out and an empty one put in its place. The truck full of empty bobbins is sent to the spinning room. These may seem like small details to be talking about, but they are typical of many features of Barber-Colman Automatic Spoolers—features which add to convenience, saving of effort, saving of time, and increased production—features which make Barber-Colman equipment valuable for producing more and better war goods, faster.

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • TWISTER CREELS • MOISTURE CONTENT CONTROLS

BARBER-COLMAN COMPANY

ROCKFORD, ILLINOIS, U. S. A.

FRAMINGHAM, MASS., U. S. A. GREENVILLE, S. C., U. S. A. MANCHESTER, ENGLAND



GALATIANS VI:9

For over a year we have been saturated with good news about the war and yet —

Our job is far, far from being accomplished.

Even if the war in Europe is over before this is printed, we will still be a long way from the things we started out to win.

Our job of "well doing" must go on and on. We can't live on our war record after this war—and the post-war period is going to last a long time.

BUY MORE WAR BONDS

SONOCO MAKES *EVERYTHING* IN *PAPER CARRIERS*

SONOCO PRODUCTS COMPANY

BRANTFORD ONT. HARTSVILLE S. C. MYSTIC CONN.

DEPENDABLE SOURCE OF SUPPLY

AN OLD TIMER SAYS

In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

The Importance of Foremanship Training

MAGAZINES have numerous articles about foremanship training, and many firms have been established for the sole purpose of giving courses on the subject. However, all of the magazine articles we have seen are about foremen in ship yards, foremen in air craft factories, foundries, etc., etc., and this makes them of little value to us textile folks. Also, the few firms which put out foremanship training courses seem to have gotten their foundation ideas from training in industries other than textiles; therefore, their courses do not quite hit the spot so far as the practical difficulties textile foremen are confronted with.

As one mill president said to me while discussing the merits of a foremanship course—that is, whether to purchase it for his men or not—"OLD-TIMER, they do not talk our language. I would like to have a practical mill man give my foremen a series of lectures on foremanship." We advised him to buy the course anyway, then designate one of his overseers to have meetings of all foremen and discuss the course as he read it to them.

Along this same line are many courses we have seen on human relations, or as one firm puts it, "human problems in production supervision", which sounds more like it fits into textiles, but take a look at a quotation from one paragraph listed under Labor Organization. "Labor is too frequently antagonistic and belligerent. But too often the inarticulate feelings of labor are pitted against the cold logic of management. Sympathetic understanding, non-logical realities, etc., etc., etc."

Gosh, fellows, some of us wouldn't know whether that kind of language was cussing us or not, would we?

Don't misunderstand OLD-TIMER. He is not knocking the courses that are being put out by these firms but is just trying to give them the reactions he has had from conversations with many practical men, with whom he has discussed the courses. These courses have done much good, as OLD-TIMER is glad to say—he has learned much from them himself—but when a textile foreman starts to study such a course which does not talk his language, as the mill president remarked, that foreman naturally loses some interest; and you can't blame him.

There is much sound advice in courses, instructions and pamphlets put out on the subjects of human problems, human relations, etc. For example, one human problem course says, "The time to adjust human problems is before they reach the stage of open action. When a worker has quit or has been discharged, or a group has walked out, the resistance of both sides prevails over logic and it may become a weapon of warfare. The most deplorable thing about a strike is the aftermath of ill-will and the long period required to heal wounded pride and to re-establish constructive, individual and social attitudes."

How true this is, as every overseer knows. And there is another great fundamental fact which would be of inestimable value to every overseer, superintendent and personnel director if he would keep it constantly before him in all of his dealings with people—that fact is, "A human being is a bundle of habits wrapped up in a skin."

Habits influence every act of a human being, whether operative or foreman, and if a man keeps this constantly in mind he will be able to interpret the other fellow's thoughts and actions more clearly. This fact is really the foundation of human nature; yeah, human nature is a bundle of habits when you analyze it. It is simply against human nature to change habits, but it can be done by the man who is smart enough to know how to go about it. Changing the habits of groups of people is simpler than changing individual habits, believe it or not. Group habits are never as deeply rooted as individual habits.

Again this course says, "Competent industrial leadership is interested, therefore, in preventive management. It attempts to predict probable reactions to policies and practices before they are put into effect. It is interested in the dynamics of attitudes and the thoughts and feelings of workers as yet inarticulate."

Ouch! Getting a little deep, but darn good logic.

Now if they would go on and tell us how to obtain results. They do, of course, but in a way that is pretty hard for us fellows who haven't been through college to understand.

"Develop the techniques of personal leadership in all ranks of supervision." That's fine, but how? Anyway, fellows, it will pay you or your firm to buy these courses—any of them—yes, all of them, because they will give you food for thought. You will find much good sound advice that you can use. You know a man can read a book on blacksmithing and find something in it that he can use, even if he is a preacher, a merchant, a textile manufacturer, or what.

Few of us—yes, very few—realize what modern printing has made available to us in education. Reading is educational, especially if you read as you should—so you will at least remember things that pertain to your work. Have you stopped to think how much the textile magazines have been worth to you, how much they have helped you in your work, how you have gotten an idea out of some contributor's article or an idea from the recorded meeting of one of the textile association meetings, an idea that has saved your company fifty dollars a week, or possibly thousands of dollars a year? And it cost you only a measly little dollar. When you think of it, do you see how a textile firm would not be glad to subscribe for a textile magazine for every section man in the mill, as well as all overseers, superintendents and assistants? Remember that article OLD-TIMER wrote several years ago showing definite savings many mills had received as a result of its men reading COTTON? Just one reference may help you to recall the article. A textile student, upon graduation, was given a job. When he reported to the superintendent for work, the superintendent had not thought of any particular job to put the young man on, so, off-hand, he said, "You report to the overseer of carding and tell him I want you to look over those cards to see how we can get more pounds through them—that is our 'bottle neck'."

The young textile graduate reported, but he had no idea what in Heck to look for. Next morning, while watching the cards being started up, he noticed one man take a handful of card strips, dip it into the fire bucket to wet the strips and then hold the handful of wet strips onto the belt. Immediately he remembered an article (yes, it was an OLD-TIMER article) that he had read in COTTON while he was in college about a test which had been conducted on cards with oak-tanned versus soft-tanned belts. The happy ending of the story is that he made certain suggestions to the overseer which resulted in increasing the card production. The mill profited to the value of several thousand dollars from an article that did not cost the reader a dollar. Yeah, that textile graduate was an overseer the last we heard of him, and by gosh, he didn't pay *anything* for the article.

It is so easy to forget articles, and some people are just as quick to forget favors you do for them. Here's a little story to illustrate the thought. It is based on an actual experience OLD-TIMER had with a young man he started in textile work. Having given this young man every opportunity for advancement by personal teaching and advice, and the young man having proved himself capable (he is now at the head of a large textile firm with a salary running into five figures), OLD-TIMER felt that, if he ever needed a favor, that young man would surely grant it. The time came and resulted in the following episode, slightly exaggerated and fictionized:

"Young man, I have a friend who needs a job. He is of good character, and I know he is capable of running the job you have open."

"Sorry, OLD-TIMER, I cannot give it to him."

"Young man, do you remember how I took you into the mill when you came out of school and gave you access to my private records so you could learn the textile business? Do you remember how I took you into my home at night for long conversations concerning the operation of machinery and the fine points of handling labor? How I wrote letters to my friends and finally got you your first job as an overseer?"

"Yes, that's all true," replied the young man.

"Then why, in common decency, won't you do me one little favor,"

"All you did for me years ago was fine, OLD-TIMER, but what have you done for me lately?"

Yes, fellows, in substance, that is a true story. People forget so easily and some are just darned ungrateful.

Switching Overseers

BELIEVE it or not, but not many moons ago we were visiting a mill and noticed they were using feelers on a style of goods that OLD-TIMER had never seen feelers used on before.

"Mr. Overseer, why are you using feelers on this style of goods?"

"Oh, we changed styles of goods on these looms some time ago and just haven't gotten around to disconnecting the feelers."

And when we tell you this was one of a chain of well managed mills, we know you will say the two statements do not go together. Well, all we can say in answer to that is that even in well managed plants there are often many small items of management which get by unnoticed for awhile and if you don't believe that, just look around in your own plant a little.

This is one idea which prompted OLD-TIMER to put the overseer of spinning in the weave room for a few days or a week and the overseer of weaving in the cloth room for a few days two or three times a year. Of course, the other overseers were switched around, too. OLD-TIMER claimed this was a good turn for all of his overseers because naturally they all looked forward to being superintendents some day and this gave them good training. Then it was a selfish move, too, because OLD-TIMER as superintendent got the benefit of having better overseers than other mills who did not go to the trouble of giving their overseers such training. Note to superintendents and managers: Do not be afraid of your overseers knowing too much about your job. You will never lose it on that account. But if you will take a real personal interest in each one of them and teach them how to be efficient superintendents, then you are liable to lose your job by being promoted to a more lucrative one because the brains of all of your men plus your brains all working together, each doing his utmost to help the other, will certainly result in a well run mill.

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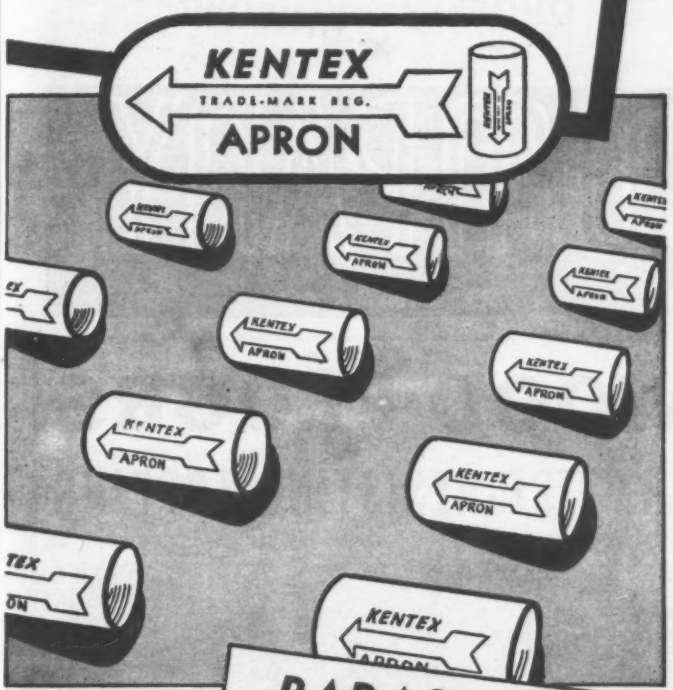

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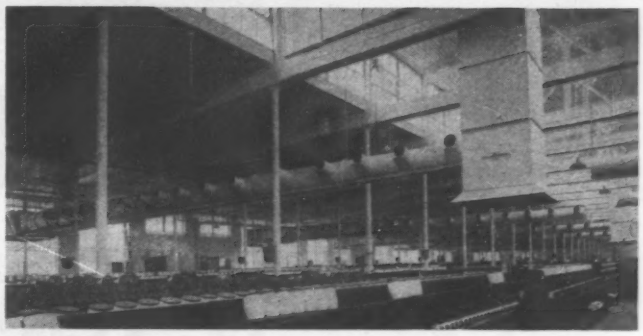

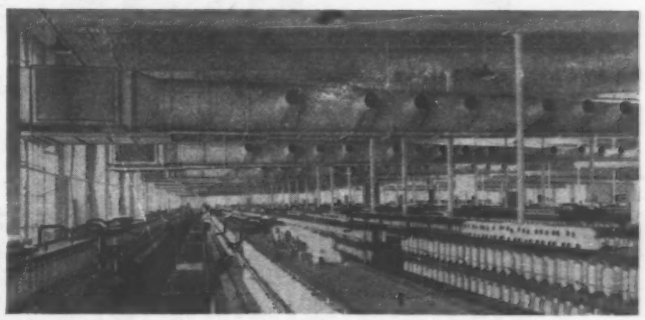

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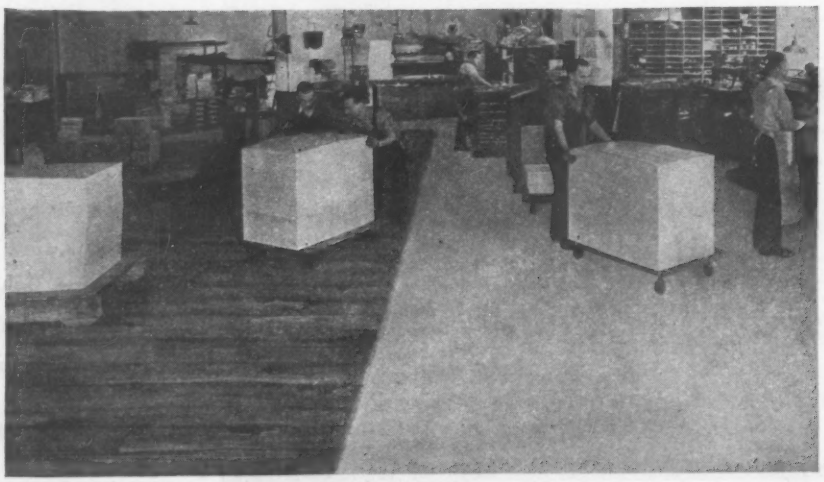

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HOW OTHER MEN MANAGE

How Much Variation In Roving Sizings?

EDITOR COTTON:

I am submitting below the sizings of 1.35-hank roving as taken from four different frames as indicated.

You will observe that the heaviest is 1.32-hank and the lightest is 1.40 H.R. Of the 20 bobbins sized, you will note that there are two bobbins of 1.40-hank and one of 1.32-hank. The balance of the bobbins are nearer the 1.35 H.R. standard.

Sizings

Frame No. 1	Frame No. 3
1.32	1.35
1.36	1.40
1.36	1.38
1.35	1.38
1.33	1.38
Frame No. 2	**Frame No. 4**
1.33	1.33
1.36	1.35
1.40	1.37
1.36	1.36
1.38	1.37

We are using Middling cotton made up of 50 per cent 1 1/16-inch and 50 per cent 1 1/32-inch staple.

This is all carded work, and after leaving the cards it goes through two processes of drawing and then to a one-process 10x5 frame. From there it is spun from single roving into 21s yarn.

The questions on which I would like to get information from other mill men are:

1. Is the variation as shown too much for single-process roving?

2. What is considered a good tolerance that should be maintained on one-process roving, carded stock?

CONTRIBUTOR No. 7490

What Causes Soft Rayon Bobbins?

EDITOR COTTON:

I would like to get information from some of your readers on the causes of soft bobbins in the weaving of filament rayon yarns. We have a great many complaints in our weave room from the "shelling off" from these bobbins. We have put new fur in the shuttles, have tensioned the shuttle eyes through springs, and have checked the power straps and pick-shafts, but still we get the "shelling off" of the bobbins. It is our opinion that the fault lies in the winding room.

I would like to know what causes these soft bobbins and also what causes bobbins to get to the looms without bunches. We are using the Universal No. 90 winder and the Whitin Schweiter winders.

By "shelling off" is meant that a sizeable amount of yarn will "rope" off the bobbin on one pick of the shuttle. If this large bunch of yarn is too heavy to go through the eye of the shuttle, it will choke in the throat of the shuttle and break the yarn. However, sometimes these bunches will be small enough to go through the eye of the shuttle and get into the fabric.

CONTRIBUTOR No. 7491

WE INVITE our readers to make use of this department for the discussion of any and all problems arising in the mill or finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing.

Winding Cheeses for Duck

EDITOR COTTON:

We have read with considerable interest the article, "Winding Barber-Colman Cheeses, for Duck, on Foster Winders", by Donald Burns, in the October 1943 issue of COTTON. There are several reasons for our interest in this particular article, among which are: the fact that we, too, are in the business of making duck and are naturally looking for improvements in the methods of manufacturing and ways to reduce cost and waste; and the fact that sometime ago we wrote a series of articles on preparing warps and filling for duck looms. The article by Mr. Burns is in direct contradiction to some of the statements in our series.

It is not our object to criticize Mr. Burns' article, but rather to have some points cleared by a further discussion. Perhaps he is entirely right and we were wrong in some of our statements, for according to his figures on waste and cost there is a big saving by using his method, although his method of preparing warps for the section beamer is quite different from that employed in some of the largest duck mills.

Let us quote from the article, "Preparing Warp and Filling for Duck Looms", Part I, by John Middleton, March 1940 issue of COTTON, page 57: "Ply yarns, in which we are chiefly interested, are usually put directly from the twister to the warpers or creel beamers, the object being to produce the greatest possible length with a minimum of knots, and in

fact for certain fabrics, warps without knots must be made. It was formerly customary to rewind all ply yarns usually on parallel tubes, with as many as three or four twister bobbins to each tube. These tubes were then put in the warper creel, and creeled out as they ran out, similar to creeling a spinning frame. Present rigid requirements with respect to knots make this method obsolete."

The following quotation is from page 58 of the same article, following a discussion of the use of spliced yarn and rewound pieces, with knots, in the warps: "Fabrics to be used for filtering, however, must be made practically knotless, so this reworked yarn may not be used in these goods. In this case, . . . the pieces that break down on the twisters are sorted out according to size and are put directly in the creel beamer and run as far as possible and are then creeled out with other pieces. The yarn that is then left on the bobbins is pulled off and may go into mop waste. It can readily be seen that this materially increases the cost of the goods, so every effort should be made to prevent ends down on the twisters . . . ".

Then from the next paragraph beginning on the same page: "There has been some discussion as to whether it is profitable to use high-speed warpers in warping ply yarns. If the ply yarn is to be used in a fabric in which knots are not objectionable, then it is possible to wind the ply yarn on a large cone or cheese and run in a high-speed warper. But on the other hand, if the fabric is to be made practically knotless, then the yarn will have to be used just as it leaves the twister, . . . ".

There is some further comment on the use of high-speed warping in the same article, but we think the rather lengthy quotations which we have already given should be sufficient to show the reader the point which we are trying to make.

It is true that Mr. Burns does not state just what kind of fabrics he is making, but quoting from his article, page 101, he says: ". . . in the fabrics which we are making, it is not necessary that the warps be entirely knotless." Naturally, in the strict sense of the term "knotless", few warps are produced which do not contain a certain number of knots, for ends will break on the beamer, bad yarn may have to be taken out, or reworked yarn containing knots may have to be used; but the standards set for our mill are warps with a minimum of knots. This is for belting, hose, filter duck, numbered duck and so forth, the requirements for the filter ducks being the most stringent.

In other days, when we prepared warps by the method outlined in our first quotation, the knots in our tubes would frequently all come within the space of two or three cuts; thus, there might be 25 cuts with practically no knots at all, and two or three cuts with so many knots that the goods would have to be put into seconds. We do not recall that Mr. Burns stated just how he managed to keep his knots scattered to prevent this condition. Perhaps it is in the way he winds his yarn, or, again, it may be in his method of creeling. We would like to have this point cleared up.

We do not question the figures which Mr. Burns has given as to his savings both in waste, cost, floor-space and the intangible, for without doubt all this is correct; and he is evidently making a handsome saving for his company. The thing we cannot understand is how he gets away with all the knots. Our mill was in the duck business a long time before the present war, and hopes to continue in the business for a long time after hostilities have ceased, and we firmly believe that we would hurt our reputation should we start making goods containing a lot of knots. Possibly a comparison would show that Mr. Burns has no more knots in his duck than we have, but, frankly, we will have to be shown, for we believe that with our methods fewer knots will result.

Could we hear from Mr. Burns and others on this subject?

JOHN MIDDLETON

More on Opening Compressed Cotton

EDITOR COTTON:

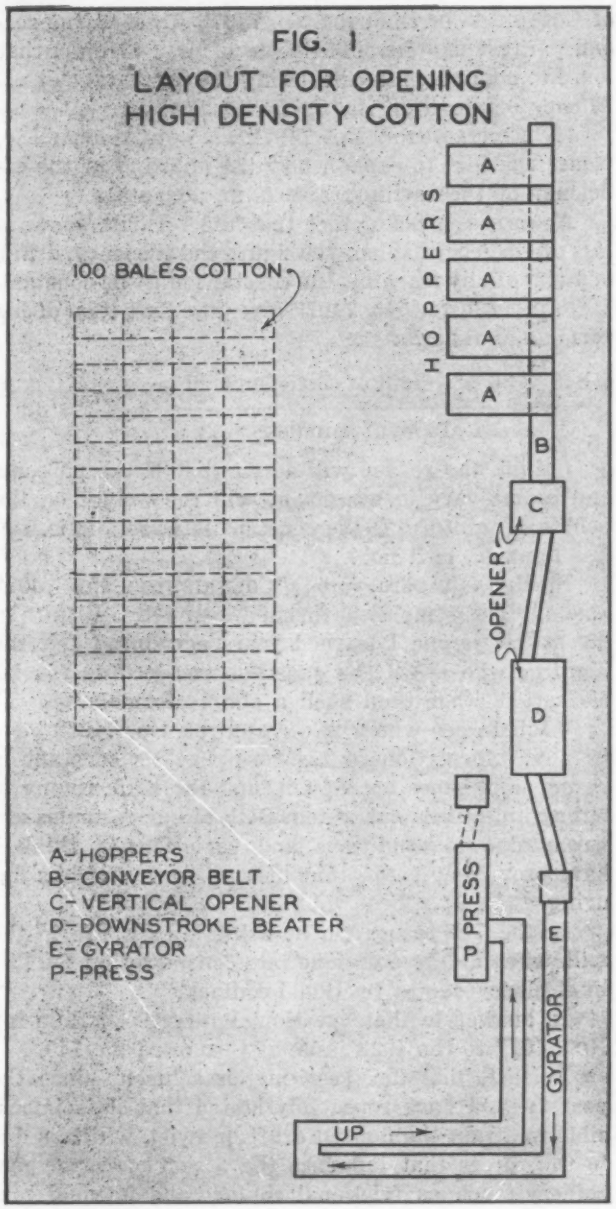
On page 119 of the November 1943 issue of COTTON "CONTRIBUTOR NO. 7477" asked for information on the opening of compressed cotton, although he did not say whether he meant the standard compressed bale or the high density bale.

Regardless of the kind of compressed cotton he is running, the methods which we use may be of some assistance to him, although I notice that he is restricted as to the number of bales which he can open at one time. I shall give briefly our systems of opening both types of bales.

For high density cotton, we use a layout as shown in Fig. I and open up 100 bales at a time. The hopper tender pulls the cotton off the bales in thin strips and feeds it into the hoppers "A", which deliver onto conveyor apron "B". From the conveyor apron, the cotton goes through the vertical opener "C", making approximately 550 r.p.m. Then it goes through the downstroke beater "D" which runs at approximately 400 r.p.m. The cotton then goes through about 40 feet of Gyrator "E" into a bale press "P".

The re-baling of this cotton is probably unique. After opening as described, the cotton is re-baled into standard size bales, but they only weigh from 350 to 400 pounds and carry only 3 or 4 ties. The reason we do not make a 500 pound bale, with the regular number of ties, is because this high pressure has a tendency to compress the cotton again, which would defeat the purpose of the opening operation described. We want the cotton to stay soft and fluffy, even after being re-baled.

We then try not to run this cotton for at least 24 hours. We have found by this method that the cotton runs so much better on our cards that we were able to speed them up about 4 pounds per hour. The stock thus processed is going into high grade combed yarn. It is a good grade, Strict Middling cotton or better, 1 3/32-inch staple. We do not put it through these machines with the idea of getting any extra cleaning but only to open it up and get it



into a fluffy condition before it is fed into the regular opening room in the mill where it is to be used.

The loosely bound bales are run through the same opening room machinery as is used for flat bales.

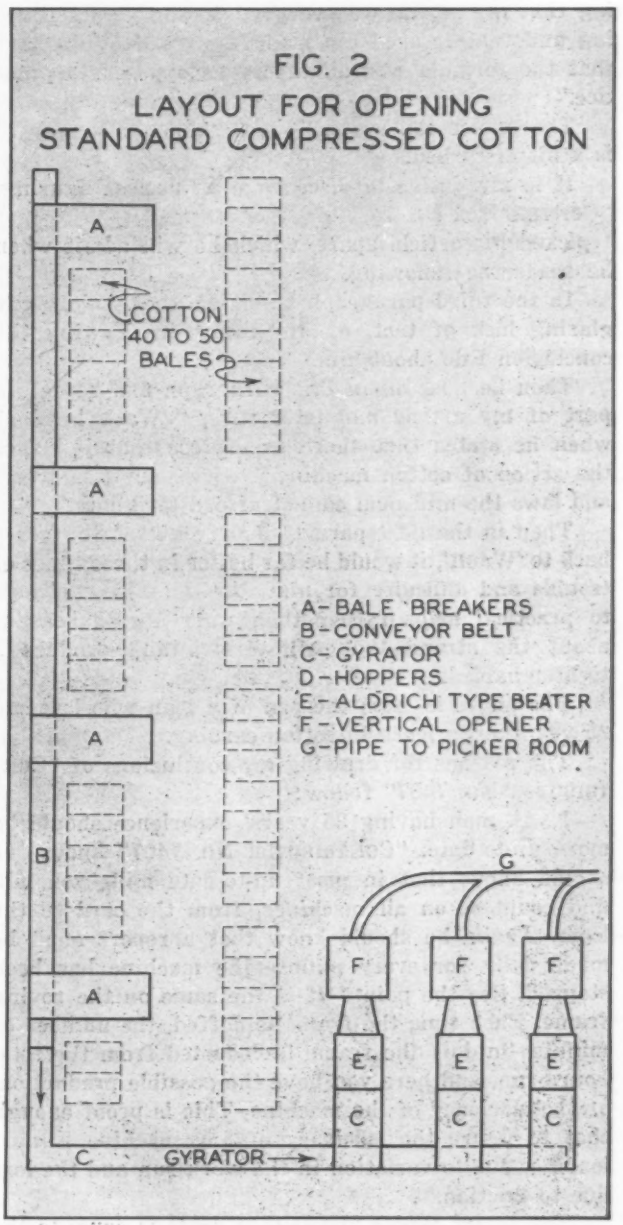
Our layout for opening standard compressed bales is shown in Fig. 2. This opening room has just been re-arranged, and we have what we think is a very good arrangement. The cotton in this mill is all standard compressed western cotton, averaging about Strict Low bright in grade and 1-inch staple.

In this room, we open 40 bales of cotton at one time. It is fed into the bale breaker "A", then onto conveyor belt "B", which delivers the cotton to Gyrator "C". From the Gyrator, it drops into hoppers "D"; then it goes on through an Aldrich beater "E", which runs at approximately 1,000 r.p.m. Next, the cotton goes to the vertical opener "F", making approximately 550 r.p.m., and then directly into the picker room where it goes through another Gyrator as it drops into the picker hoppers.

The hoppers "D", that are fed by the Gyrator in the opening room, are synchronized with the hoppers in the picker room. When the hoppers in the picker room get full, they automatically stop hoppers "D" in the opener room, and when these hoppers get full, they automatically stop the bale breakers "A". The synchronization of these machines works out very nicely and prevents the hoppers from overflowing onto the floors.

The cotton, opened as described, goes into single carded yarn and requires good quality and high breaking strength.

In order to clear up the difference between high



density and standard compressed cotton, high density cotton runs about 15½ cubic feet per bale, with 32 pounds per cubic foot. Standard compressed cotton runs about 22½ cubic feet per bale with 22 pounds per cubic foot. Ordinary flat bales, sometimes called country bales, run about 45 cubic feet per bale and about 14 pounds per cubic foot.

For one thing, I do not think "CONTRIBUTOR No. 7477 is opening enough bales at a time.

CONTRIBUTOR No. 7489

"Wash" Replies to Contributor No. 7407

EDITOR COTTON:

On page 135 of the September 1943 issue of COTTON "CONTRIBUTOR No. 7407" answers my article which appeared in the July 1943 issue.

In the second paragraph he states, "On page 132 of your July issue you published a communication from "WASH (R. I.)" referring to my discussion and claiming that my article was very misleading and confusing and that it used too many figures. He also said that the formula was all theory as opposed to practice."

The reader can see that "CONTRIBUTOR No. 7407" is a bit disturbed.

It is my desire to discourage all useless figuring. "CONTRIBUTOR No. 7407" is wrong when he states that I picked his article apart, which he will admit when he reads the following.

In the third paragraph he claims that I show one glaring lack of tact, or diplomacy, in drawing the conclusion I do about him.

Then he goes on in this paragraph and repeats a part of my article and later says, " 'Wash is right when he states that there are forces that influence the action of cotton machinery whose manifestations and laws the mill man cannot afford to ignore."

Then in the next paragraph he states, "So, to get back to 'WASH', it would be far better in these times of trouble and difficulty for him to confine his writings to practical helps rather than worrying the carder about the strand that will stretch and produce a tighter hank in spots."

The above is from the pen of a man who has had 25 years' experience in cotton carding.

The reasons for drawing my conclusions of "CONTRIBUTOR No. 7407" follow:

1. A man having 25 years' experience should be more up-to-date. "CONTRIBUTOR No. 7407" knows, or should know, that in most up-to-date mills you will find counters on all machines, from the card to the loom. Again, he should know that a report must be made daily for every minute the machine has been stopped. See the point? It is the same on the roving frame. Each time the frame is doffed, the number of minutes to doff the frame is deducted from the total hours run, and here you have the possible production, or the efficiency of the machine. This is proof enough that to figure the efficiency of any machine is misleading, due to variation in the work run and the loss due to friction.

The smart carder knows that draft is equal to the hank coming out divided by the hank going in. It is the only way to find the actual draft. Then, the loss of efficiency can be added to the figured draft by proportion.

"CONTRIBUTOR No. 7407" must admit that when the pick-ups are sized from the spinning room the report shows much variation, sometimes as much as four numbers. He must admit also that the beams will vary in weight 5 pounds over and under.

Now turn to page 136 of the February 1943 issue of COTTON. "CONTRIBUTOR No. 7407" states in the second paragraph, "I would like to offer a formula that I use to advantage in calculating the percentage of efficiency obtained on roving frames."

If "CONTRIBUTOR No. 7407" answers this article, please ask him to explain how the knowing of the efficiency of the roving frame is an advantage.

Again, is it not a fact that the formula shows a loss of efficiency? When you figure the efficiency, draft, or twist of any machine, the constant must be constant.

"CONTRIBUTOR No. 7407" gives the first item of his formula as follows:

$$\frac{840 \times 36 \times \text{weight of cotton on bobbin}}{\text{R. P. M. of spindles}} = \text{Constant}$$

I think the reader will admit that if the pick-ups and beams vary in weight, so will the weight on the bobbin. Therefore, if the constant is wrong, it is useless figuring, is it not?

In the 6th paragraph, "CONTRIBUTOR No. 7407" states, "The simplified formula given by 'WASH' in his article is one I learned years ago, but I felt the inquirer who asked the question was looking for information other than such a simple formula."

I fail to see where "CONTRIBUTOR No. 7407" gave us any information in his formula. His constant is wrong nine times out of ten, and the hank roving is wrong nine times out of ten. Both of our formulas are wrong due to conditions and variations. I think I have proved my case—that his article was useless figuring.

In the 7th paragraph he asks, "In his life in the mill, when did he ever take into consideration the loss in efficiency due to frictional contact?"

In answer to that question, I refer "CONTRIBUTOR No. 7407" to the 1923 issue of COTTON, page 143.

In fact, that has been my preachment since the year 1913. I have repeatedly stated that it is impossible to attain the figured draft or twist, which is due to the forces that influence the action of cotton machinery, such as frictional contact and unequal conditions. For instance, if the carder is on his job, and if the hank is made heavier in the preceding processes, or if the stock is more wiry, this calls for immediate attention to the setting of the drawing rolls. Otherwise, the frictioning contact will increase.

I wonder how many readers agree that the formula offered by "CONTRIBUTOR No. 7407" is workable?

WASH (R. I.)

Ga. Superintendent Answers "Wash"

EDITOR COTTON:

Toward the end of the letter from "WASH", which appeared on page 122 of the November issue of COTTON, he said:

"Now, ask the Georgia superintendent if a draft of 28.80 is practical on a slubber. Is such a draft possible? Is a draft of 32.40 practical on a spinning frame?"

Being that Georgia superintendent, I am glad to

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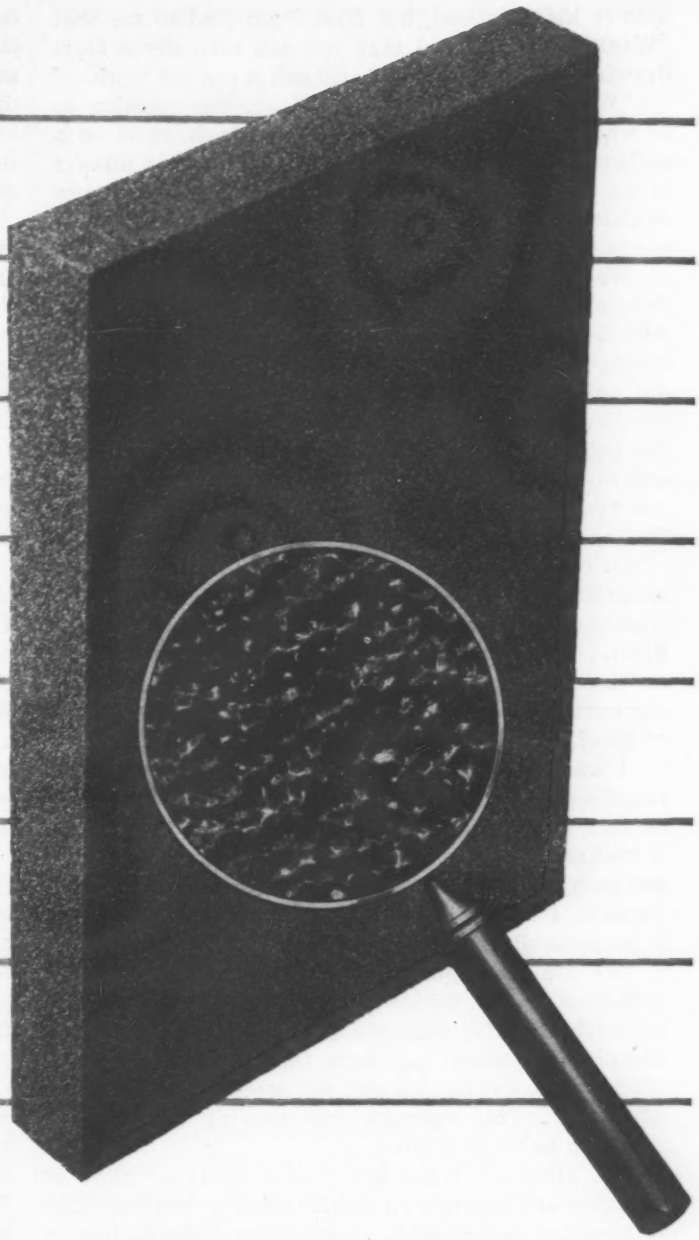

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answer his questions, but first I am glad to see that "WASH" has admitted that you can take sliver from drawing to the slubber and still call it combed work.

"WASH" challenges me to answer the question as to whether or not it is practical to draft 28.80 on a slubber. If he means the old type slubber, my answer is no. If he means a frame equipped with the new drafting arrangement, such as Super-draft, my answer is yes.

We have taken 7x3½-inch frames in our mill and done away with the bobbin creel and equipped them with Super-draft. Right now we are making 5.00-hank roving from 53.5-grain sliver. The only reason we did not make this on 10x5-inch frames was because the 10x5 frames are too heavy for fine roving. Also, the bobbins would be too heavy for the next process and would stretch the roving. Furthermore, we could not run the 10x5 frames fast enough, due to heavy flyers, etc.

Of course, "WASH" being a carder himself, he will understand all these things. We have some of our 10x5 frames equipped with Super-draft and some with 4-roll draft. However, we do not try to make fine roving on these heavy frames. We are also drafting 15 on our controlled draft drawing. Has "WASH" tried any of this?

I was talking to one of the service men who represents one of the Super-draft machine builders, and he told me of a very good mill not far from me that is making 6.00-hank roving from 65-grain sliver on 8x4-inch frames. I have not seen this, but if time ever permits, I intend doing so. At least, I will not say it is impossible until I know.

We are now spinning 42s yarn in our mill from 3.00-hank roving, double in the creel, and the breaking strength is better than the 42s made on our old type spinning. I might say here that on the new spinning we are getting a front roll speed of 125 r. p. m., 42s yarn. This spinning has gearing arranged to draft up to 60 if wanted.

So, all-in-all, I can say that a draft of 28.80 is practical and possible on slubbing and a draft of 32.40 is practical and possible on spinning. I would like to hear from other men on this subject.

CONTRIBUTOR No. 7487

The History of the Cotton Card

EDITOR COTTON:

As a rule, in war times, you will find large and small mills scheming and trying different methods with different cottons and waste. Visit these mills and you will find that the card gives the most trouble. In order to be able to run all kinds of cotton and waste, the theory and practice of the cotton card should be understood.

So, with the permission of the editor, I am going to try to convey to textile school students and others the theory of the cotton card since its birth, with the hope that it will prove of much benefit to some of them.

It is not ascertained who was the inventor of the cotton card. But it is known that the father of the late Sir Robert Peel was among the first to use it, and that early in the year 1762. With the assistance of Hargreaves, he erected a cotton card that was known at the time as a carding engine. It was in Blackburn, England, where the first large cylinder and doffer were erected.

Since that time, the principle has not differed much, but the operation has, because at that time they had no contrivance for detaching the cotton from the flats. The operation was performed by lifting each loaded flat from the card and the stripping detached by hand cards, which was a tedious, costly operation.

Next, came the invention of the grooved wheel and butterfly that stripped the stationary flats.

I know many old timers will enjoy reading the foregoing for it will bring memories of the steel knife and how it was used to extract the foreign matter before the flat was placed in the grinding machine.

The flats consisted of wood with a strip of fillet tacked on the under side that contacted the cylinder. The flat rested on four setting screws and the aim of all grinders at that time was to set the flat so an empty streak would show in the center of the flat. What a mistake!

I hope the student will keep the foregoing paragraph in mind so he can reason for himself why it was a mistake when I point out the present method and the theory of it.

Next, came the Foss and Peavy cards with the feed in front of the card with flats under the card operated by springs, grooved wheel and butterfly. At about this time, carders saw the mistake of setting the flats so that the center of the flat would contact the cylinder, and adopted the setting now in use, that is, to tilt the flat so the heel of the flat is nearest the cylinder.

The argument was that the space created by this setting would allow the fibers taken around by the cylinder to strike the toe first and be drawn under the heel, and by having the heel closer to the cylinder the fibers received a better combing and the fibers were stripped of all foreign matter.

This proves the old method wrong because foreign matter and short fibers lodge in this space and are removed by the stripping brush.

Next, came the revolving flat card. It was in the year 1886 that some of these new cards appeared in this country from "across the pond". At that time a company decided to build a new mill beside their old mill. Although I was only 16 years of age, I was interested in the different tests made from the work of the stationary flat card and the new revolving flat card. There was no comparison; the roving for yarn from the old mill was always much stronger than the roving for yarn from the new mill.

In the year 1900 very few stationary flat cards were in operation in the State of Massachusetts. However, at that time I was fortunate enough to be in charge of a card room where one half of the cards were of the old type and the other half of the new revolving flat cards.

I assure the readers of this department that after many tests the results proved the old card the best and varied very little from the tests made in the year 1886.

Put Blame On Oil

1. When Doffers and Top Flats get out of alignment.
2. When Comb-boxes get hot and wear badly.
3. When Card clothing becomes oily.

Put the blame right where it belongs—on wasteful, undependable liquid oil—that won't stay in bearings, but constantly drips and leaks.

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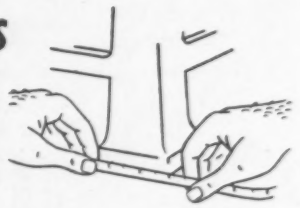

GET SET

Cover both sides of the Unisorb Felt Pads with Eagle Brand Cement.

MOVE IT WITH FELTERS UNISORB

Then place the Unisorb Felt Pads over the floor marks, set the machine on floor. That's all there is to it.

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Also, when you set machines on Felters Unisorb, you dampen machine vibration and noise, reduce wear and repair, increase workers' efficiency by decreasing fatigue—and you improve your output.

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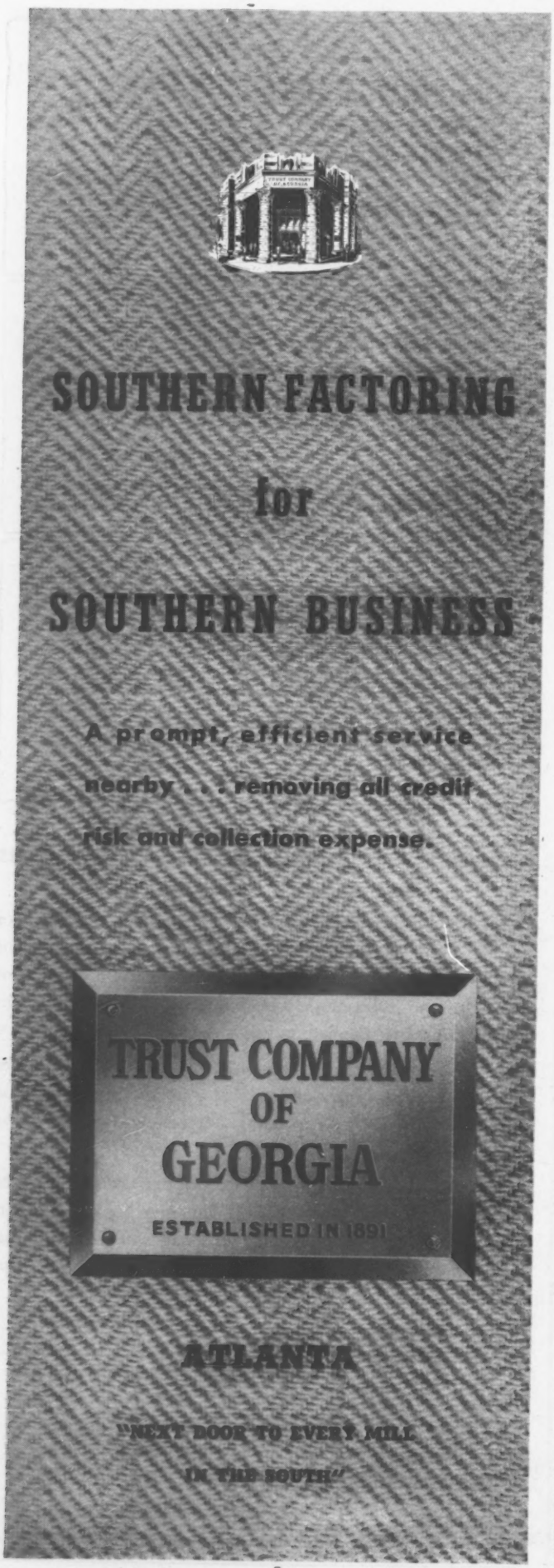
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The work from the old cards was both cleaner and stronger.

Of late, many writers advocate high card speeds without considering what takes place between the flats. If the reader has the opportunity, let him measure the distance between the heels of the flats on our modern flat cards. You will find the distance to be 1¾ inches. Should you find this in a volume published in the year 1913, please do not accuse me of plagiarism for I was the author.

In all fine goods mills the flats are set as close as possible to the cylinder. Instead of bothering with the speed, why not give the distance between the flats more attention? As stated, the distance between the heels of the flats is 1¾ inches, then what happens when the stock exceeds 1¾ inches? It must be admitted that there is a dual operation between the two flats, for the preceding heel can hold the long fibers with the result that the fibers are injured by getting extra combing. The idea is the same as having a different size nose feed plate for different kinds of stock. Here the student should see that when the length of the stock exceeds the space between the heels that the speed the cylinder is to make a bad matter worse.

Is the foregoing the reason why the old stationary flat cards produced stronger yarn? I think so, for the distance between the heels of the flats on the old cards was much greater, and the cylinder ran at a lower speed.

At this point the reader must admit that when the length of the stock used exceeds the distance between the heels of the flats, the theory of the cotton card is rejected, for it must be admitted that when fibers are held by both heels, they certainly are injured.

I may be wrong, but I think the time is not far off when the builders will give the foregoing some attention. They will increase the distance between the flats for long stock, they will have the proper nose feed plate to suit the length of stock run with the proper number of points per square inch in the card clothing. Then and not until then will the cotton card do its duty by turning out better work with less strippings.

Next, in running low grade stock, waste, or colored stock, the speed of the doffer comb is an important factor. If the reader is interested, let him look up page 116 of the November 1941 issue of COTTON.

WASH (R. I.)

Grinding Old Cards

EDITOR COTTON:

I have recently (6 months ago) taken charge of a card room, and I have never seen one just like it before. To begin with, my cards are old, very old, and have not been looked after properly. I am now overhauling them as best I can with the labor available.

One of the worst things I found was flats that were ground concave (hollow) and others that were convex (high in center), and I am now grinding each set of flats on a flat grinding machine. This, of course, is a very slow and tedious job, but it is showing results.

In checking for possible causes of these condi-

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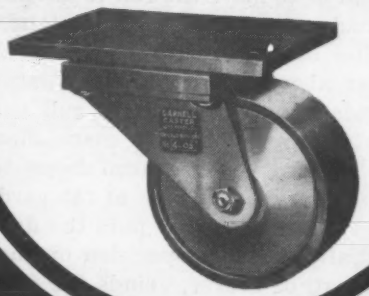

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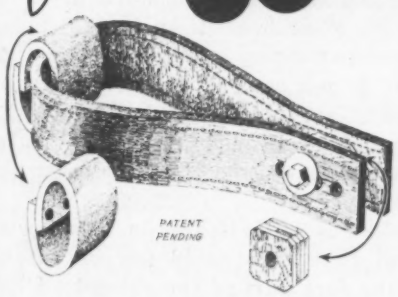

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The cuff (renewable) on the front of the strap receives the terrific blow of the picker stick from the power stroke. As the shuttle comes into the box the picker stick contacts the square leather block in the back of the strap. This block can be turned to wear on all four sides . . . cannot be put in wrong.

The Champion JUMBO is installed in practically the same manner as a regular Check Strap.

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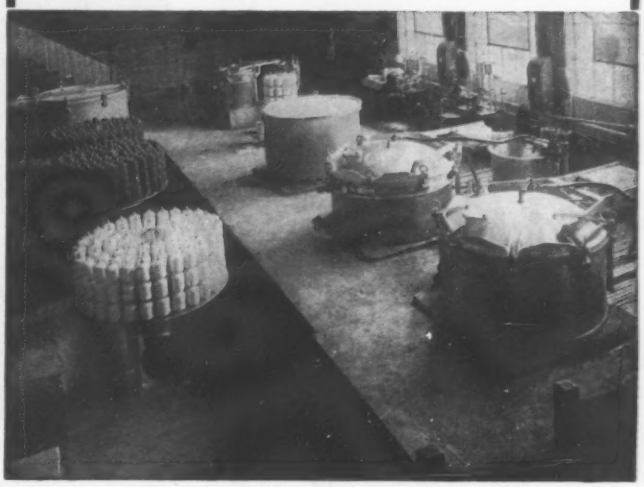

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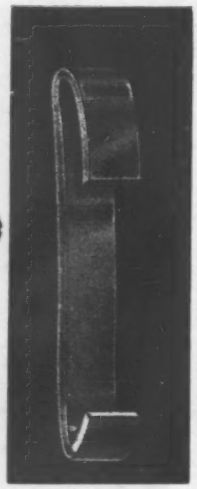

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tions, I found that first of all the drum grinder slides (stands) were cast iron and were not large enough to accommodate bushings or bearings of any kind. The card grinders usually put the grinder roll into the slides (stands), adjust them to the flats, put a bit of grease in the stands, and leave the roll running until time to pull down the stands for a new adjustment or to move the roll to another card.

We have had any number of these stands to burn out or to grind out from sand dropping into them from the floor above. This, and the natural wear on these stands, threw the grinder roll out of line with the flats, or—to state it more clearly—the stand which is most badly worn drops the drum grinder down lower on that side of the card than on the other side. This naturally puts the drum grinder into a partially crosswise position on the individual flat, and that, of course, grinds the flat concave or hollow.

To remedy this, I am now replacing the old stands with stands of a different design. The new stands accommodate the familiar bronze bearing that is part of the drum grinder equipment and is attached to the drum grinder shaft so that the bearings are moved along with the drum grinder.

The convex, or high-centered flats were something different. I found the cards equipped with different kinds of dogs, arms, weights and other mechanisms for holding the flats rigid while being ground. It may not seem that this would produce a convex effect, but what we really found was that the difference in the weight arm lengths and size of the weights either held the flat too firmly or too loosely, as the case might be.

If the grinder set the drum by ear (sound), oftentimes the ends would hold too high and tight and of course would be ground lower than the center of the flat. Because the flats had too much pressure upon them, they "gave" or bent down in the center and therefore were not being ground as short as were the ends. On 90 per cent of my cards, I found that the ends could be set to a .010-inch gauge, but a .034-inch gauge could be slipped under the center on the hollow ground flats, and vice versa on the convex ground flats.

My next trouble was with lickers-in, some with diameters so small that they could not be set up without grinding the fore part of the shroud. I had dull lickers-in galore and mote knife-bars that were set in as many different ways as a woman is permitted to change her mind. But it did not matter much how the mote knives were set because, without exception, they were all worn "round" on the cleaning edge, and many of them were bent. I bought enough new mote knives to equip 24 cards and am having the old ones straightened and re-ground.

My purpose in going into such detail here is not to tell you so much about what I have done as to provoke a real discussion among some of you old timers—and "young-uns", too—that will benefit us all. No doubt, some of you know better ways than mine to remedy the ills I have described, and if so, I want to know about them. I am a firm believer in the "How Other Men Manage" department.

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Continued on Page 144

Continued from Page 143

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KNITTING . . .

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KNITTING SECTION

An Experience of a Trouble Shooter in Canada

By John Sanders

IN MY TRAVELS all over the United States and Canada as a trouble shooter here and there in knitting mills of different kinds, I have had some very interesting experiences.

There is one instance that I would like to report; perhaps some other mill will profit by this, if I go over it in my own way. It happened in Canada. I was called there to overcome some of the mill's difficulties. The owner of the mill was a very nice man, in fact "too nice". He was a man that seemed to think it was a sin to discharge help, no matter whether they ran the job or not. If a man worked for him two years, he seemed to think that he should keep him in his employ the rest of his life, or pension him off. This man did not say these things in so many words, but when I came to talk with him that was the impression that he gave me. This was a new mill, had not been running long, and it was losing money every day. There were 22 knitting machines on rayon.

When this man started his mill he hired a knitter to take charge. He believed everything that this knitter told him. The day I walked into the mill, I saw eight men walking up and down the knitting alley, of 22 machines, and half of them were standing waiting for repair. These men were picked for operators without using any judgment as to their ability as a knitter. One of the boys was a real farmer. He had on high-top shoes with heavy soles and a blue checkered flannel shirt. I am not trying to insinuate that this boy was not a good worker. All that I can say is the boy was in the wrong place.

When I asked the owner what all of these men were doing, he told me that these men were his knitters. Then we walked over into the knitting alley. I could plainly see that some of the machines were smashed, due to carelessness and bad winding. It didn't take much of either of these things to smash them up, as they were all 42-gauge spring needle machines. I said nothing at that time about the condition of the knitting alley, but asked if we might see the cutting room.

When we walked into the cutting room every table had a large pile of short pieces of cloth, and they were continually throwing pieces upon the piles. The cutters were disgustedly trying to turn the cloth every which way so as to dodge holes, drop stitches, and holes caused by smashes. There was no harmony in this cutting room. One could tell by the look on every boy's face that his day's work was only a drudgery, and that he was anxiously waiting for the day to be over. No telling, perhaps some of these boys had been accustomed to better cutting room environments.

We spent that part of the day looking around the mill. The next morning when I went into the knitting department I made it my business to sort out the knitters; I found only one out of the eight that was really a knitter, the seven others were walking up and down the alley trying to figure what it was all about. They didn't seem to be doing anything that was of any importance; if the machine had a bad needle they did not know how to take it out, or how to fix any of the smashes. Some of them couldn't tie on a set of yarn without pulling the ends all down from the stop-motion. I spent the day walking around the room watching the knitting machines, then among the winders.

I found out where the trouble lay, and the next morning when I went into the office the owner of the mill received me cordially, but when I asked him to take six of the knitters out of the knitting room and leave me with the one good knitter, and the next best one, and I explained why, he told me that I was crazy, that I couldn't run the knitting department with two men, and that he didn't care to discharge them.

I tried to explain things but it just seemed that all this man could think of was discharging these six men. But when I explained to him that he could take these men for the period of two or three weeks and place them in different departments of the mill—such as the dye-house and washroom, so as to let me work out my own ideas, the owner was dissatisfied with his foreman. "He was losing money," and something had to be done. So at last he consented to my plans. He called his foreman into the office and we went over the situation together, and at last came to an understanding. The owner said that it couldn't be done. He was paying each man $10.00 per week, (yes, it was several years ago) or $80.00 for the alley. I asked him if he would let me work out my plan—give me two weeks, and if I couldn't make my proposition good, I was willing to put the knitting room back as it was; and if I did make good he was to pay each knitter $20.00 per week, which would be cutting the pay roll for the knitting alley in half, by using only two operators.

The owner agreed to this so the foreman and I started in to make changes in the knitting room. After

we had talked with the two best knitters they said that they would be willing to work harder for the raise. The knitter who had the most experience was given ten of the big machines which were using mostly all 12 feeds, and his machines were all at one end of the room. The other man we took to the other end of the room and gave him twelve machines, mostly all 8-feeds, and I started to make a knitter out of this man. At the end of the two days he told me that he had learned more about operating machines in the last two days than he had learned all the time that he had worked there. I began to see that my theory was right; those eight men walking up and down the knitting alley with no one to teach them were just waiting for night to come. They were taking no interest in their work because they had no one to explain things and to make knitting interesting for them.

The next thing that I did was to go to the winder room and instruct the girl in charge that each operative must have a number, and must be supplied with tickets with their numbers on them, and every bobbin of yarn which was taken from the winding machines was to have a ticket with the girl's number in the top of each bobbin. I saw to it that this plan was carried out. If the knitter received a bobbin of yarn without a ticket, it was sent back to the girl in charge until a ticket was placed in this bobbin. Any bobbin of yarn that the knitters found that wasn't wound on the bobbin correctly, and it gave them any kind of trouble, was placed on a truck for my inspection. These bobbins were sorted and each number was separated and returned back to the winder for rewinding. In this way we found the winding help that was giving the most trouble on the knitting machines. It was only a few days before the girls on the winders began to see that these things must be overcome, and they all began to cooperate with the knitters.

In a week's time one would hardly believe that it was the same knitting room. The two knitters were running twice the number of machines with less smashes and were having more time to themselves. I have always thought that if a knitter is crowded with too much work he cannot keep his machines in good running order. Too much work causes carelessness with the best of knitters, and not enough machines will cause the same thing. A knitter should have time to think and keep his machines in order, such as cleaning and yarn supply. A busy knitter is sure to neglect some of the necessary duties.

It wasn't long before we could see a different attitude with all of the help in the cutting and knitting rooms, though we had a certain amount of trouble to put things in order, and we didn't lose a hand in either department. We all know that in every department we find certain operatives that do not like to work under new rules, but in this case, all departments seemed to cooperate and to be working under the new plan.

Two weeks had passed; things were running nicely between the knitting foreman and myself. We had taught these two boys to operate their machines under a new system, in fact, the whole knitting room was systematized. The owner of the mill could walk into the knitting department any time during the day and see the knitting machines were all turning and as a rule each knitter could be seen walking among his machines not burdened with work. The machines were making good, salable cloth, and the boys were working with ease.

The owner of the mill told us that he thought it would be impossible for two knitters to operate that number of machines and to do it with less work than the system which he had used. He said that we were breaking less needles and that the expense of operating the machines as far as parts were concerned had been cut less than half. This meant something in Canada at that time as all of these machines and parts were purchased from the United States and there was a forty per cent duty. The owner was well pleased and made the remark that we must have some wonderful systems in our mills in the states. He also said that his foreman was well pleased with all of the new plans. This proved to me that the man in charge meant well, but he just was not experienced in starting up a new mill with green help.

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Further Developments In Soybean Fiber

Early in December, the Drackett Company of Cincinnati began commercial production of a new fiber made from soybeans. This synthetic staple fiber has been under limited production since 1941, *Rayon Organon* reports, when experimentation was begun at the Ford Motor Company, but it was later suspended in June, 1943. Now that the Drackett Company has taken over the equipment, the fiber is being further developed with the hope of marketing at a price which will permit widespread use in textiles and fabrics.

As yet unnamed but formerly called Soylon, the fiber is said to be warm, resilient, strong and durable. It can be treated for moisture absorbency or moisture resistance, and it may be blended with cotton or wool. It has already been made experimentally into blankets, felt hats, underwear, hosiery, suitings, and upholstery fabrics.

◆

Predictions of Nylon Yarn Capacity

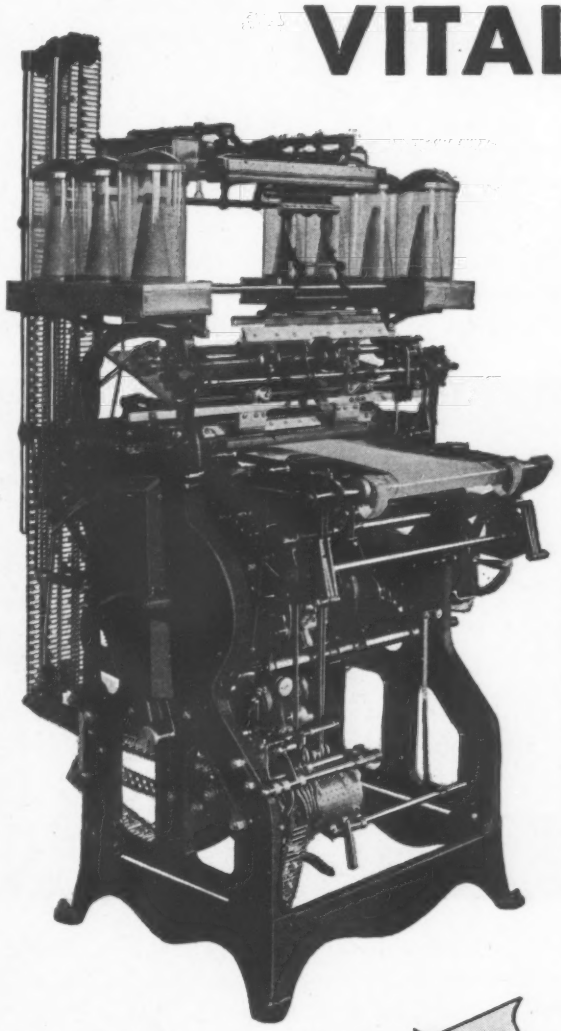
"When nylon returns entirely to civilian use, yarn capacity, even at the present rate, will be sufficient to supply most of the hosiery industry," said Robert A. Ramsdell, sales director, Nylon Division, E. I. du Pont de Nemours & Company, Inc., at the February 4th meeting of the American Association of Textile Chemists and Colorists.

Nylon production today is much larger than it was when America entered the war, Mr. Ramsdell explained, and yarn plant facilities can and will be converted immediately to commercial yarn when they are no longer needed for critical military uses.

Explaining why certain civilian fabrics made of nylon are now on the market, though hose cannot be made, Mr. Ramsdell said that a small percentage of nylon parachute fabric has come out in short lengths unsuited for parachutes, or with minor imperfections. This has been released by the War Production Board in part for civilian use, but it cannot be unraveled back into knitting yarn for the manufacture of nylon stockings.

"This fabric is considered by the WPB too useful to be sold as waste," said Mr. Ramsdell, "until it has been discarded after serving civilian needs. It can then be earmarked for conversion back to nylon raw material for war purposes, along with other nylon remnants, discarded nylon hosiery and thread waste. Our conversion plant, for chemically reclaiming this waste, is now under construction at Seaford, Delaware, and will be ready for operation in May or June, 1944.

Releasing Men and Women for
VITAL WAR WORK



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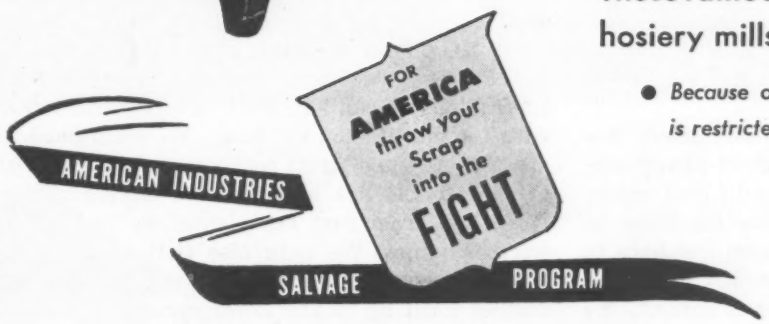
not only saving the time consumed in change-overs when leggers and footers are used, but also releasing men and women for more vital duties in these days of labor shortage. These famous machines are on duty in hosiery mills throughout the country.

● *Because of war work, our production is restricted to supplying repair parts.*



WILDMAN MFG. CO., NORRISTOWN, PA.

KNITTING KINKS

WE INVITE our readers to make use of this department for the discussion of any and all problems arising in the mill or finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing.

What Causes These Bent Latches?

EDITOR COTTON:

Enclosed you will find samples of some trouble I am having on my knitting machines (*see cut*), together with samples of the needles I am using. You will observe that each needle has a bent latch that has caught behind the hook.

These defects occur in different places in the fabric and with different types of yarn. All my efforts to locate the cause of the trouble have so far not been successful.

I would appreciate hearing from your readers on the possible causes for the defects shown.

CONTRIBUTOR No. 7492

(The above inquiry was submitted to Mr. K. O. Metz, known to our readers for his series of articles on the Komet and Links-and-Links machines which appeared in COTTON *in* 1940, 1941, 1942 *and* 1943 *and which were later reprinted in full. The reply from Mr. Metz follows, and other readers are invited to offer their suggestions on overcoming the defects shown in the cut and described in the reply from Mr. Metz.—The Editor.)*

EDITOR COTTON:

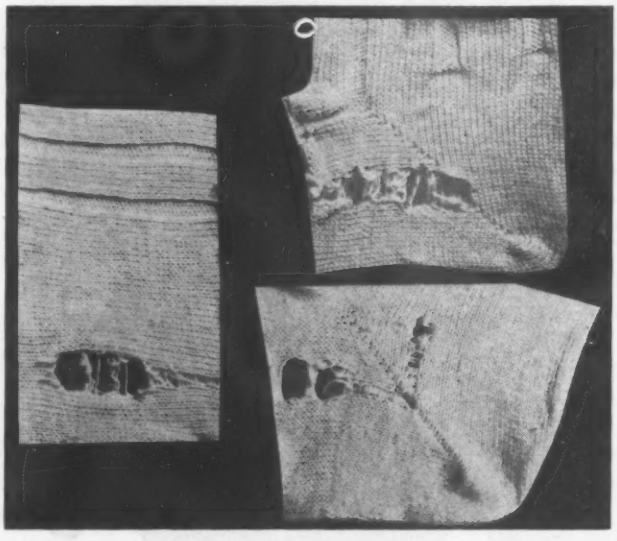
In order to be of real assistance to "CONTRIBUTOR No. 7492" it would be helpful to me to have a little additional information, such as diameter and gauge, whether plain 2-feed machines or Links-and-Links set-up on plain work. However, I will try, with the information in hand, to give you the benefit of some experience with similar troubles.

Judging from the pieces of fabric submitted, this contributor has 4-inch, 132-needle, 36/24-gauge machines, either plain, 2-feed or Links-and-Links set-up on plain work. We have both of these machines in operation on cotton, mercerized and wool numbers in about the weight of samples submitted. Assuming that the foregoing diameter and gauge is correct, the yarns being used should be entirely satisfactory insofar as count or size is concerned.

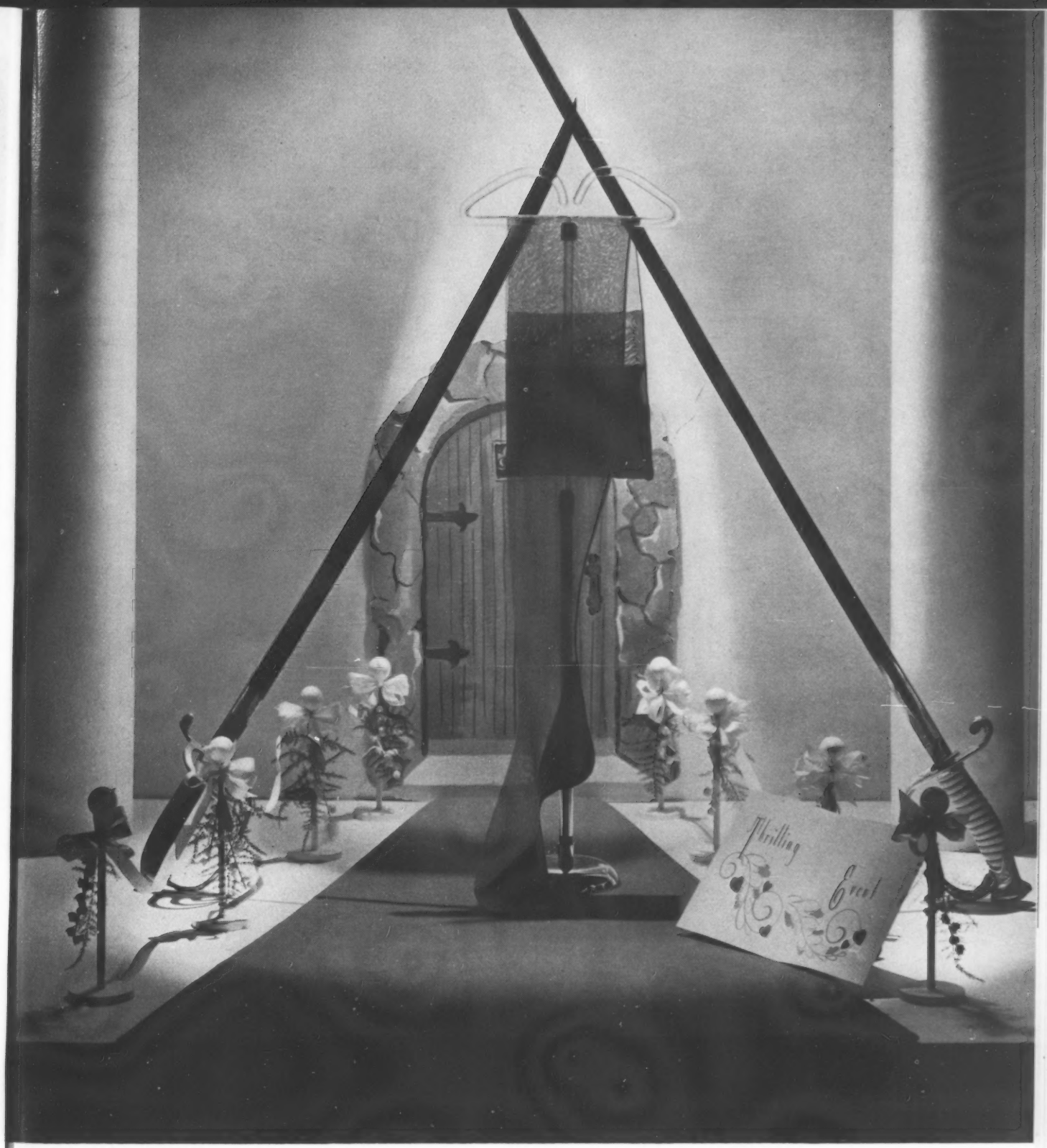
First of all, we noticed immediately that the inquirer is using deep crimp needles; these were used sometime ago on plain 2-feed and Links-and-Links machines. We had some machines come with this type of needle, but after considerable testing we changed over to the original 36/24-gauge No. 403 needles and now use these exclusively. We have had a few cases of similar trouble with No. 403 needles but in each case were able to overcome this by careful checking. The contributor does not state whether he is having this trouble on *all* of his machines or just one here and there, so we shall assume the latter to be the case.

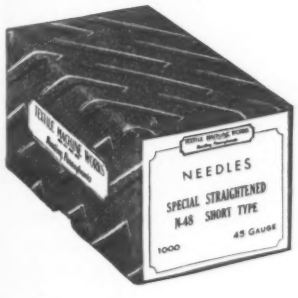
It is possible that some of the trouble is caused by the needles he is using; that latches are being partially bent during the up-and-down transferring operations, and then, as the knitting continues, they finally give way and get behind the hooks, as the samples indicate.

If the contributor is not familiar with the No. 403 needles we would suggest that he try some in one of the most troublesome machines. It will be necessary to order a dividing cam. Dividing cams for the needles now in use cannot be used with No. 403 needles.



In setting a dividing cam for No. 403 needles, leave about .003-inch clearance between the inner surface of the cam and the stitches on the rib needles, with the machine on the heel. We mentioned the needles he is using *first*, not because we think that all of the trouble lies here, but we simply noticed that first, and from past experience, we feel it would be worth trying. We note also that all three samples show the same trouble on frame needles—that is, needles knitting in the lower cylinder—one while reciprocating, one in the foot (bottom) and one when the auxiliary feed yarn came out before the toe. The last one could be caused by the trapper not cutting properly—that is, the yarn being pulled apart rather than being cut, also cutting too late. Leaving too long





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TEXTILE MACHINE WORKS • READING, PA.

THE WAR DECORATIONS OF TEXTILE MACHINE WORKS

Bur. of Ord. Flag and Navy "E"
July 25, 1941

One Star All-Navy "E" Burgee
January 25, 1942

Two Star Army-Navy "E"
July 25, 1942

Three Star Army-Navy "E"
January 25, 1943

Four Star Army-Navy "E"
January 11, 1944

an end here can cause this trouble. The long end knits in and causes a pull against the latch. Auxiliary feed fingers, and sometimes trappers opening excessively, will bend a latch when the auxiliary feed comes out of action. These things are not difficult to find; we mention them because they can happen, and have happened, in our experience.

The bent latch on the dyed sample showed up while the gore was being made either before or after down picking began. This could be caused by a rough place on the latch guard, especially the front guard. Usually such a place will bend more than one latch or give sufficient trouble so that it will be found readily. Sometimes such places are hard to find. Correct clearance on the front latch guard is important, but any latch guard set close enough to cause no trouble elsewhere should not bend latches while making heels and toes. It may help to smoke the latch guard and thus make sure of the latch line, which, in turn, might help to locate a troublesome point or rough spot. One latch guard (No. 204373 for a 4-inch machine) will be more apt to become rough from constant contact with latches during heel and toe knitting than any others. Notice carefully when turning the machine by hand how the needle latches are cammed *upward* on the back stroke. At first the camming action is very gradual, but just *before* the latches are up high enough to pass *behind* the guard, the pitch of the camming surface increases quite sharply, and this latter point is where the guard is apt to get rough enough to bend the latches. The *direction* in, or toward, which the latch is bent, will often help solve the problem, and for this reason, it is well to determine positively whether the latches are being bent on the backward or forward stroke. In other words, try to locate the cause by the process of elimination.

The one sample piece of fabric that interests me very much is where the latch was bent in plain knitting in the foot, We had one machine, out of a large group, which gave this trouble. Sometimes it would bend latches in the heel, or toe, on either the forward or backward stroke—but more often, in plain knitting, in the leg, foot or looper margin. It would bend one or two latches a day and then stop for a day or two and start again, never bending more than *one* latch. We checked everything and polished all latch guards carefully. We were determined to put our finger on the *cause* for this one, but all in vain. Finally all the boys were asking, "Did anyone fix the crank?"

Then one morning we noticed that the sinker ring had a little play, so we pressed it off, and immediately we found more play in the sinker ring. In fact, it was too bad to run, so we took the machine down and put a new key in the ring. The old key-way was both loose and worn, which made more play show up when the fabric was pressed off. After this machine was re-assembled and started up we *expected* more bent latches but have not had any trouble with it since fixing the loose sinker ring some six months ago.

We have had loose keys on other machines, as bad as this one, or worse, but no bent latches in plain knitting. Our fixers were skeptical as to whether the loose sinker ring key was causing the trouble; we do know that it stopped, however, so we feel that the latches must have come in contact with sinkers or bluffs. The odd part is that we had no trouble of any kind with this machine, with the exception of the bent latches, whereas, on other machines, we tightened up sinker ring keys for a number of other reasons.

Needless to say, we watch closely for loose keys now, regardless of whether or not we are having trouble of *any* kind. Perhaps we are preventing some of this trouble—who knows?

We have passed this information on for your consideration, with the hope that it may be helpful. Above everything else, we have noticed one thing, insofar as bent latches are concerned; that is, we usually find them showing up after press-offs, sometimes as soon as the press-off is picked up, often after a few socks have been knit. Some of it may be caused by carelessness in picking up press-offs, but most of it, we feel, is caused by the press-off, especially if the stopping mechanism fails to function as quickly as it should.

With this thought in mind, we do everything we can to *prevent* press-offs, whether they be caused by the yarns, the operatives or the machines—it makes no difference, we fight this trouble every day.

Breakouts In Transfer Line

EDITOR COTTON:

On page 148 of the July issue you published a question from "CONTRIBUTOR NO. 7452" with reference to break-outs in the transfer line of stitches, especially in the corners of the high splicing, making 100 denier rayon full-fashioned hosiery. He said this trouble occurs when transferring the leg to the footer and occurs more when the atmosphere is dry than on damp days. He has tried re-pointing the transfer bars, and this has not helped much. He says he does not have this trouble above 45-gauge.

I would like to offer to him the following suggestions:

Make up six small rods of 3/16-inch or ¼-inch material, to measure about 3½ inches long. Thread at one end. At even intervals on the machine, take off six of the transfer bar brackets and drill and tap them so that the small rods may be attached to these brackets. The long end of the small rod is to extend 2⅞ inches from the base of the transfer bracket. When the transfer brackets are in working position, these small rods will be pointing downward and almost resting on the base of the needle heads. As the needles are raised, these small rods contact the needle bars and raise the transfer rack accordingly. This helps in taking care of the excess press or strain in this operation.

I hope you will find this idea to work out for him as it proved successful for me when we first started running rayon. Of course, breakouts in the corners are sometimes due to careless or inexperienced toppers, and only a constant check of their work will eliminate their errors.

CONTRIBUTOR NO. 7473

Another Letter to Joe Doakes

A KNITTING MACHINE FIXER

EARL ROBERTS has been giving advice to Joe Doakes in a series of letters that appeared in the Knitting Section of "Cotton" in the December 1942, and in the March, April and May 1943 issues. These letters constitute comments from one knitting machine fixer to another.

In the June 1943 issue, page 138, we presented a reply to Earl Roberts from Willie Doakes, who said he was Joe's younger brother.

Then on page 124 of the August 1943 issue, we presented a rebuttal from Mr. Roberts to Willie's letter and invited other readers to join the debate.

Now, here comes Pop Gears, the self-styled "Sage of Hosieryville", with his thoughts. Let's have yours.—The Editor.

DEAR JOE:

I have been reading with considerable interest your friend Earl Roberts' letters to you that have appeared in COTTON several times for a year or so. It seems that Mr. Roberts "knows his onions" insofar as fixing full-fashioned hosiery machinery is concerned, but it is quite possible that he is not using the most effective psychology to impart his knowledge and point out the pitfalls. Benjamin Franklin said: "A poor example is the best sermon." So, if you will indulge me I will relate a few incidents I have observed in the hosiery mill during the past 30 years. I consider these poor examples of learning to fix, so they should serve in a painless sort of way to point out the pitfalls to young men learning to fix.

Speaking of vanity, Mr. Roberts says in part: ". . . and what fixer doesn't have a little bit of that running through his make-up?" Of course, we all have a certain amount of vanity. Perhaps most of us who have come up through the "University of Hard Knocks" have too much for our own good. So, I am not going to satisfy my own vanity, and possibly hurt yours, by offering you a lot of fatherly advice. I will just tell of other young fixers' mistakes, and you can take them for what they are worth.

I have in mind a rush-order synthetic fixer who tried to become a full-fledged fixer by taking short cuts to the top. He failed to perceive that the ladder to success was slippery, and should have been ascended one rung at a time slowly and cautiously lest he slip and fall. Instead he didn't bother to take the time to understand the knitting machine—not even superficially. He just followed his instructor around until he learned to make the common adjustments, and what to do when the most frequent mechanical failures occurred. He made no attempt to get an intelligent insight into the cause and effect of his job—just a sort of rule-of-thumb method of fixing. Naturally he spent most of his time in trial and error.

This rush-order fixer happened along about the time full-fashioned knitting was in its infancy in the South. It was before the day of sheer hosiery and the fine gauge machines. The machines he tampered with were 18-section, 39-gauge machines; and the air conditioning equipment consisted of several units of evaporative cooling system. In spite of the fact that this type of cooling system is not so effective when the weather is muggy, it kept the room temperature fairly uniform and the temperature did not vary enough to disturb the settings of the coarse-gauge 18-section machines. But when the management began to install finer gauge machines of 24 to 30 sections, then things began to happen that puzzled the synthetic fixer.

On hot sultry days when the atmosphere was saturated with moisture, the cooling system could not evaporate this moisture fast enough to effect the desired cooling. Consequently the narrowing rods on the longer machines would expand lengthwise and throw the narrowing points off. Of course, the fixer would adjust the narrowing points so they would transfer accurately, but when the temperature dropped or the relative humidity got back to normal he had to do this setting all over again. This is one of the many things that happened because he only tried to learn enough about his job to get by. If he had been a natural fixer he would have been interested enough in mechanical science and its relation to full-fashioned machinery to know that variation of room temperature causes metals to expand and contract in proportion to length. He would have readily understood the real function of air conditioning, and in the case of his narrowing trouble, he would have taken steps to remove the cause instead of almost constantly treating symptoms.

Please don't misunderstand me, Joe; I am not partial to any system of air conditioning. I recognize the fact that both methods of air conditioning (evaporative cooling and refrigerating-reheating methods) have their places in the hosiery industry. As you know, the simplicity of the evaporative cooling method is quite satisfactory in climates where average humidity the year around is about 70; and for full-fashioned machinery with comparatively short narrowing rods such as the single-head machines and the 18-section machines of coarser gauge. But, for machines of 24 to 32 heads of 45 to 54 gauge, the coefficient of expansion involved in the long narrowing rods would be sufficient with only a few degrees rise in temperature to offset the minute settings of the fine-gauge narrowing points. Therefore, for multi-section fine-gauge full-fashioned machinery I would say the refrigeration method of air conditioning is necessary, because this method will keep the temperature at a more uniform level than the other method.

"Do you recall those lonely Saturdays, especially in the afternoon when everyone else was out having a good time at the ball game or some other pastime,

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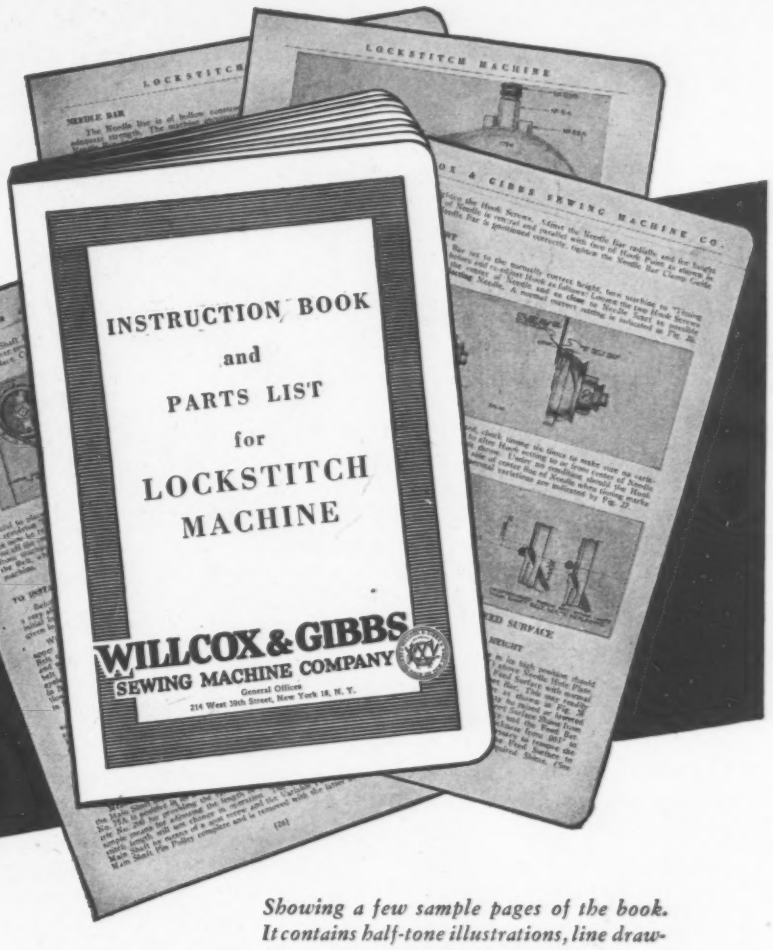

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while you slaved and sweated over some machine that needed doctoring?", Brother Roberts asks. I have known maintenance men to work on machines that needed doctoring lonely Saturday afternoons or holidays, but they were veteran machinists who knew where to start overhauling a full-fashioned machine, not learners. Usually when full-fashioned machinists are overhauling a machine Saturdays, they must get it ready to start Monday morning, and can't be bothered with learners. In my humble opinion, the natural fixers—the best fixers—gradually absorbed their knowledge of full-fashioned machines while they were knitting, and do not try to learn on lonely Saturdays what it took the veteran fixer months and even years to learn about doctoring machines.

Perhaps, Joe, you recall "Bill Jones", the wise guy who read a textbook on full-fashioned knitting through one time, and then tried to bluff his way as an expert fixer. Yes, the fellow who confidentially admitted to some of his close friends that there were a lot of things he didn't know about fixing, but boasted that before the boss found it out he would know all the answers. Well, he spent some lonely Saturday afternoons sweating over a machine or machines that needed doctoring when, if he had known the fundamentals of knitting and the mechanism of the full-fashioned machine, as everyone should before trying to fix, he could have found the cause of the ailing machine and applied the remedy during regular working hours, and would not have had to spend those precious Saturdays experimenting the trial-and-error way.

Joe, did I ever tell you about "John Doe" and the peroxide blonde (this has no connection with the old gag about the traveling salesman and the blonde)? Well, John Doe was a full-fashioned fixer—a natural—who had ascended the ladder one rung at a time with a sure footing. Since he was assigned to a section of footers, he was daily associated with young women who did the bar topping. As you know, bar toppers as a rule are a pretty decent sort, but there are black sheep in every flock, so it is only natural that one or more gold diggers will get into the hosiery mill now and then. Among this group of operatives was a buxom blonde (the kind gentlemen prefer) who looked upon every man with a substantial income and a weakness for women as her prey. Since John was tall, dark and handsome, commanded good wages, was an eligible bachelor and genial towards the fair sex, this blonde soon spotted him and began to scheme to exploit his financial resources. Although John was nobody's fool it was hard for him to say "No" when his better judgment told him he should—especially was this true when the women asked him for a favor. He acted as banker for his knitters and toppers on a small scale; loaned them money, never collected any interest, and not infrequently he lost the principal of the loan. This was what prompted John to tell the blonde where to get off.

"Blondie's" entering wedge into John's purse was a one-dollar loan which she repaid promptly. As she gained the fixer's confidence she increased the monetary value of her requests, and took longer to repay the loan each succeeding time. Finally Blondie induced John to take his money value in priorities on her date book which was supposed to give him social prestige—a reputation as a village cut-up. He assumed this reputation for awhile until he began to realize it was not worth the cost, and was finally driven to the conclusion that he must break off social relations with the golddigger or break himself financially.

After John had advanced to the point in his attachment with Blondie where it took all his surplus and all he could borrow to keep his "lover" satisfied, he became sick of the role of playing Santa Claus which had been practically thrust upon him. So, one morning he came to work with a bulletin he had typed the night before. It read:

TO WHOM IT MAY CONCERN

This is to notify all bums, deadbeats and golddiggers that I, John Doe, am not Santa Claus with ready cash free for the asking. It should be remembered that Santa Claus is short and chunky, and wears a long grey beard. It will be observed that I am tall and slim, and clean-shaven most of the time. Furthermore, any money that I may have was earned and saved for my own exclusive use, and not to loan or give to bums, deadbeats or golddiggers. So please do not get me mixed up with the merry old gentleman from the North Pole.

J. D.

When John had posted this bulletin on the board over the water fountain, the blonde flame was one of the first to read it. Naturally she flushed with resentment, and uttered an oath in much the same manner that the angler does when he sees that big fish get away. But fortunately, time heals all wounds—especially when the proud, selfish and irresponsible get the conceit jarred out of them. So, as time passed, as time will, you know, the blonde gradually lost interest in John and, I suppose, hooked another fish. Meanwhile, the knitters who had seen their banker's surplus disappear during his fool's paradise with the blonde, understood when they read the notice on the bulletin board, took the hint, and never bothered John for a loan again.

So, here's wishing you good fortune and plenty of chances. That's all you need to reach the top. I am sure of that.

Very truly yours,

POP GEARS

The Sage of Hosieryville.

Encourage Your Star Performers

Every department has one or more "star performers", men who stand out and excell others in the quality and quantity of their work.

What do you do about your star performers? Do you just take them for granted? Because they are already much more efficient than others, do you say, "Those fellows are already doing all that can be expected of them, and they need no special attention"?

Just because a man is more efficient than the average, there is no reason to neglect him. Appreciation for his efficiency should be shown in tangible ways as well as by words of credit and praise. Such men are valuable in any force. They set an example for others. Their performance shows what can be done. These men are the ones you would hate most to lose. Therefore, do not neglect them. Keep them satisfied. They are your real assets.—*"Management Information", Elliott Service Co., Inc.*

split second photo SHOWS VALUE OF SMOOTH FINISH IN KNITTING NEEDLES

Here the Stroboscopic Camera, taking a stop-motion exposure at 1/300,000ths of a second, shows the course of a thread over the surface of the needles — and illustrates the necessity of smoothly finished needles in the knitting of full-fashioned hosiery. For it is obvious as you follow the course of the thread that each needle must have a completely smooth finish to allow easy passage of the yarn over its surface ...and that all the needles must be uniformly smooth to produce even stitches. Torrington Needles are finished by special *machine* methods that assure finer and more uniform smoothness at every important point. Other factors of equal importance, such as fine temper and uniform dimensions, are also engineered into Torringtons by machine precision methods. The resulting high quality and efficient performance of Torrington Needles are helping many mills maintain high standards in these days when new yarns in hosiery have made good knitting doubly important.

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One of the outstanding advantages of Torrington Needle Bearings is their exceptionally small size in relation to their unusually high radial load carrying capacity.

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The small size which characterizes the Needle Bearing also contributes to efficiency and economy of product design in other important ways: it facilitates compact design; simplifies housing structures, frequently permits reduction in overall size; contributes to lighter weight; and through one or more of these advantages—makes for greater efficiency and lower cost.

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As one new application led to another, modifications were made and new type Needle Bearings were developed by Torrington to meet new engineering requirements which were encountered, particularly in aircraft applications. For example, the AT Type, originally developed for use in conjunction with AN bolts, has a heavy, through-hardened outer race, a heavy hardened inner race, and is designed to give a maximum static non-brinell capacity equal to the sheer strength of the AN bolt. Another type was designed to adapt the Needle Bearing principle to cam-follower service...another for "x-tra capacity" load requirements... and so on until today Torrington provides a Needle Bearing to meet virtually any radial load requirement. The size ranges of the principle types are shown in the accompanying table. Additional information on other types and sizes will be found in our Needle Bearing Catalog, available on request.

TYPE DC

TYPE NCS

TYPE AT

TYPE RC

TYPE NEEDLE BEARING	MINIMUM SHAFT DIAMETER	MAXIMUM SHAFT DIAMETER
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NCS	.6250"	5.500"
AT*	.1900"	1.000"
RC	.2500**	1.500**

** Size range to fit Standard AN Bolts Nos. 3 to 16*

*** Indicates OD of stud on cam-follower. Camroll diameters range from .6875" to 4.000".*

Importance of Size in Postwar Product Design

War-accelerated design of military equipment and material which has shown a definite trend toward "compactness" to save cargo space and lighter weight to facilitate air transport will continue to promote greater efficiency in the design of postwar products. The contributions which Needle Bearings can make in this direction are already well established in many fields. If you are planning new products or design improvements in old, it will pay you to investigate fully the advantages in the use of Needle Bearings. Our engineering department will welcome the opportunity to cooperate in developing designs or assist in the selection of the correct Needle Bearing for your requirements.

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TRENDS AND HIGHLIGHTS OF THE KNIT GOODS MARKETS

Army Requests Bids on Record Total of Wool Half-Hose—Branded Hose Mills Continue OPA Action—Plentiful Supply of Nylon in Postwar Era—1943 Underwear Production Registers Gain Over Previous Year—Knitters Try to Improve Sales Cotton Yarn Position Under Order 317—Elastic Top Hose Experiments Delayed

Philadelphia, February 16, 1944

BOTH THE hosiery and underwear industries produced more goods in 1943 than in the previous year, with the larger percentage increase being achieved by the underwear trade—a gain of 17 per cent, compared with 1942, while the gain in the hosiery field was around 3 per cent. It is not expected that either will do a lot better in 1944 than in 1943 because of manpower and yarn bottlenecks that will probably continue as long as the war lasts. Underwear manufacturers, for example, could step up production if they were granted higher ceiling prices and if they were able to locate additional skilled workers, as well as a much larger supply of cotton yarns. While shipments of women's full-fashioned lines were up last year compared with 1942 it should be emphasized that in the latter year they were unusually low, so that 1943 shipments were only relatively high. Even with this in mind, it is apparent that both branches of the knitting field deserve great credit for the work they did last year under handicaps. They kept the military forces well stocked in most lines and took care of the civilian trade in a fairly satisfactory manner, considering the all-out war conditions.

Full-Fashioned

Retail volume in full-fashioned hose numbers was considerably better in the holiday season than in the preceding year, and at the year-end, distributors reported stocks down importantly compared with a year previous. This condition has caused retailers and wholesalers to come into the market during the present year, to date, to replenish their depleted stocks, causing a larger demand than knitters have been able to offer— particularly as more manufacturers are coming to the point where they refuse to sell output too far ahead.

There are reasons for this attitude, the foremost being the danger of being left, when the war ends, with war-type hose which may not be easily salable. This is causing knitters to reduce quotas compared with recent months, and in some cases, buyers are finding it difficult to get the same percentage of finer goods as before. Knitters want to give them a larger percentage in the coarser lines, which buyers are not anxious to take in larger amounts than absolutely necessary.

Recent meetings have been held to discuss the postwar outlook for yarns. The consensus is that, as soon as the war is over, not only will enough nylon be available for the making of hosiery but it will become available very quickly. In addition, there will be other new types of rayon and synthetic hose yarns that will enable manufacturers to turn out a much better product than now. It must be recalled that the high strength viscose rayons are now going only into war items. There is no doubt but that consumers are not entirely satisfied with some of the rayon full-fashioned goods coming on the market, but when the handicaps to knitters and producers of rayon yarns are taken into consideration, it cannot be denied that a good record has been made. American women are still wearing the best wartime stockings in the world, just as they did in peacetime. It is becoming more difficult for the industry to obtain as much fine denier rayon as last year, resulting in the continuing trend toward coarser types.

Half-Hose

Manufacturers of half-hose and slack length types were busy in 1943, between 5 and 6 per cent more so than in the preceding twelve-month period. Indications are they will have another busy period this year, at least as active as last year. They are unable in most cases to step up production much above current levels because of bottlenecks in manpower and sales yarns, whether of cotton, rayon or wool. This branch of the industry is having a busy time of it, principally due to the extremely large amounts of half-hose that are being taken by the armed forces. In this respect, the Army Quartermaster Depot at Philadelphia early in February asked for bids on about 40,000,000 pairs of part-wool and all-wool half-hose which were urgently needed. In addition to makers of half-hose being active on such contracts, they have been receiving larger than normal demands for other types from the civilian trade. For example, in work socks, just a few weeks back the War Production Board assigned a rating of AA-4 to such knitters for the manufacture of cotton work socks with a finished weight of 1 pound-8 ounces or higher per dozen pairs. The rating was to apply to socks that are produced during the period ending March 31, 1944.

Manufacturers of the short length types were disappointed when they were informed that it will be much longer before they can hope to get a regular supply of elastic yarns.

Seamless

As for showing gains in shipments, seamless numbers for women have been a weak spot in the industry, which may reflect in part the higher wage standards throughout the country. Many consumers of seamless types now are up in the next better bracket, which means full-fashioned.

While shipments of women's seamless are off, there are continued gains in such seamless lines as anklets, where markets have been expanding by bringing new consumers into the picture. Examples are large numbers of women war workers who wear anklets, whereas, in civilian life or in peacetime, they would wear full length hose. One of the month's developments that is not favorable to seamless manufacturers is the announcement that anklet manufacturers will have to wait longer before they can obtain supplies of elastic yarns. Mills that were conducting experiments along these lines were forced to drop them when it became known that the military was going to require all such yarn.

Underwear

Makers of knit underwear who depend upon cotton sales yarns for their

FORECAST

(Opinion submitted by COTTON's market correspondent)

Philadelphia, February 16, 1944

THE WAR HAS speeded up numerous technological developments in the textile industry which, so far as civilians are concerned, will not become apparent until the end of hostilities because of the heavy needs of our armed services, which must take precedence. While these changes will be apparent in practically all branches of the industry, nowhere will they be more conspicuous than in rayon. Irrespective of the many improvements in the handling of rayon yarns for the manufacture of hosiery, especially women's lines, that have been made in the last couple of years, there are consumer reports indicating that women look toward the future to the time when other fibers can again be used. Most of them mention nylon, because of the gains that fiber had made in the women's full-fashioned hosiery field just prior to the war.

But rayon yarn producers point out in this connection that rayon "has gone to war." By this they mean that the better types of rayon are being taken by the military in such large quantities that there is little or none left for the civilian trade, which must take the types the armed forces do not require. In rayon yarns, this means that the high tenacity types are going into tire cords for the Army and Navy, to say nothing of the use of the man-made fiber in bomb-chutes, tow targets and many other war items. Military demands for rayon have increased by leaps and bounds in the last few months, so that under these conditions it cannot be denied that such yarns as are available have been a "life-saver" for civilian hosiery lines. However, many fail to realize that the so-called better types are unavailable for civilian use and that it will not be until peace comes that rayon can really show what it can do in women's full-fashioned numbers.

That new rayon and other synthetic yarns developed to meet military necessities will bring about marked changes in civilian fabrics after the war was emphasized at a recent symposium on synthetic fibers, when attention was called to several new type yarns in rayon, nylon and Vinyon. These are expected to change materially the feeling of consumers toward the man-made fiber and to offset adverse expressions that have come through comparing the type available for full-fashioned hose with silk and nylon.

The war has brought about other changes in textiles that cannot fail to have an effect during peace years. A couple of such instances may be cited, such as the Army's asking spinners of silk yarns to go into the making of worsted merino counts in an emergency, and in a more recent case, where wool carpet yarn spinners were asked to and did produce wool hand knitting yarns to take part of the load off worsted knitting machines. There are hundreds of other such instances, the effects of which will be felt by civilians after the war in the increased efficiency of the textile industry.

The Army's development of "shell-type" clothing is bound to affect civilian clothing ideas. This is where more layers of clothing are used as the temperature drops, or are taken off as it becomes warmer.

raw material have been more upset in the last month than veterans in this trade can recall. The reason was the issuance at the turn of the year of revisions in Order 317 applying to cotton goods and cotton yarns. Setting up the rating percentages was intended to even up the rated business among all manufacturers and spinners and prevent a situation where most of the rated business was supplied by a relatively small portion of the industry. Whatever the intentions of the War Production Board, the effects have been very unfavorable upon the underwear industry in that its sources of supply for yarns have dried up. Many underwear manufacturers claim they cannot get any yarns this month. Spinners say they had to set aside their production to take up the rated percentage, and in cases where they were over this percentage, they said they did not desire to take on new customers at this time.

Underwear manufacturers had a large production year in 1943, probably the largest in their history. This was done under severe handicaps, such as the yarn situation and the lack of manpower, to say nothing of inadequate ceiling levels, according to many in the trade. There are now reports that OPA is shortly going to give some ceiling relief, but it is not here yet, and most knitters say they will wait until it actually is announced before becoming too hopeful. Recent temporary ceiling advances in men's and boys' heavyweights expired January 31.

Hosiery Shipments Show 1943 Gains

Only two branches of the hosiery industry registered declines of shipments in 1943, compared with the preceding year. These were women's seamless, with a decline of almost 12 per cent, and children's and infants' with a drop of almost 26 per cent. The War Production Board took cognizance of the latter by giving manufacturers of such lines a rating late last year for their cotton yarns, hoping that the sharp drop in production of these essential items would be checked. Shipments of all types of hosiery last year showed a gain of 2.8 per cent compared with 1942. Outstanding was the gain of 7.4 per cent in women's full-fashioned hosiery, which took place even though government spokesmen, as well as several in the industry itself, had said at the beginning of last year that a sharp drop in such shipments would occur. These manufacturers were able to achieve the record because of a steady supply of rayon and cotton reinforcing yarns, while at the same time, the loss of knitters entering the armed forces or war industry was counteracted to an important extent by new methods of knitting that increased production per worker.

President Constantine, head of the National Association of Hosiery Manufacturers, called attention to the fact that—while shipments of women's full-fashioned registered a substantial gain last year, compared with 1942—when compared with 1940, such shipments showed a decline of 11.7 per cent. Women's seamless, compared with 1940, dropped more than 14 per cent. Shipments of anklets showed a small gain last year, but compared with 1940, this branch of the industry showed the larger shipment increase, almost 50 per cent. This illustrates the sharp gains for those lines which are being worn at present. In normal times, the full-length numbers would be bought.

Underwear Knitters Produce More Goods

Underwear production in 1943 showed an increase in the knitted types of 17 per cent over the previous year, and inventories were up 2 per cent last year compared with 1942, according to data covering the first eleven months of 1943 as compiled by the War Production Board. Production of knit underwear for civilian use showed a decline of approximately 1 per cent during 1943 compared with the previous twelve months.

Compared with 1939, production of civilian lines during 1943 was up 17 per cent. Following a meeting of the Knit Underwear Industry Advisory Committee with WPB, it was stated that provisions are already under way to meet existing shortages of infants' and children's knit underwear during the first quarter of this year.

Elastic Hose Mills Delay Experiments

Manufacturers of underwear, anklets and slack socks, who had anticipated being in limited production by March

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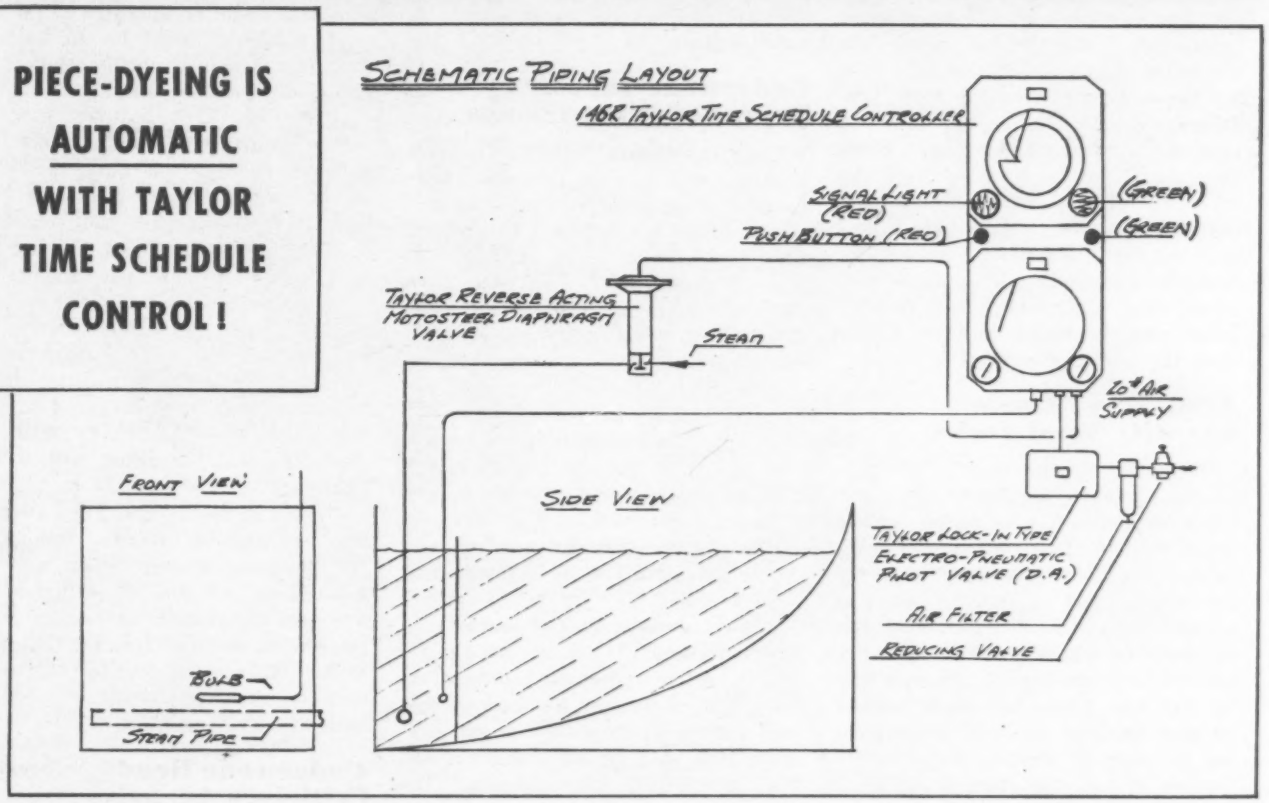

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on numbers using elastic yarns, have been informed that the Army will take over all the production of yarn made from Neoprene. Seven makers of anklets and slack socks have been conducting experiments with synthetic rubber yarn since last fall, and the news that it has been withdrawn from use in civilian goods probably means that the experiments will be delayed indefinitely. Only a few weeks ago the latest shipments of synthetic rubber yarns were received by these producers, supplementing the previous small amounts they had received. However, they have not been able to make up enough of the elastic top hose from the new yarns to give retailers a definite opinion of consumer reaction. Underwear manufacturers are also convinced they will have to delay the different numbers which were dependent upon the new rubber yarn.

Army Buys Large Quantity Wool Socks

During the present month the Army has been endeavoring to buy more than 40,000,000 pairs of wool socks—including more than 11,000,000 pairs of cushioned sole, almost 26,500,000 pairs of lightweight and 2,500,000 pairs of heavy weight—and a large quantity of ski socks on which the exact quantity has not been announced. As was true in 1943, the Army has again revised its specifications for such socks, seeking to make it possible for a larger number of manufacturers to bid upon these items which the Philadelphia Quartermaster Depot declares are critical items and are urgently needed for our troops. It will be recalled that last year the Army cancelled orders for tan cotton mercerized socks. At that time the trade was given to understand that no more of these would be bought for the present but that procurements in the future would concentrate on a type of hose made from half-wool and half-cotton.

The lightweight type being bought this month is for regular issue and takes the place of the mercerized variety, the Army claiming that the cotton half-hose did not hold up well under conditions of actual warfare. Manufacturers bidding on these hose have been given a wider leeway in the types of yarn that may be used—including a merino, one end of worsted combined with one end of cotton and a third alternate where the two latter types of yarn are twisted.

Last year the Army had trouble in buying all the wool socks that were needed, and, following the opening of bids this month, a similar condition was experienced, reports being that the quantities given have been undersubscribed. This occurred even though the Army cancelled bids on several million yards of flannel shirting, which took merino yarns, in order that preference might be given by the spinners to yarns for these wool socks. Many in the industry report that, while some bottlenecks are in types of knitting machinery that may be used, they are mainly in the tightness of yarns, notwithstanding the broadening of specifications.

Underwear Industry Expects Ceiling Change

The underwear industry is now awaiting ceiling price action by OPA to give relief on prices that manufacturers insist are unfair. They claim they are too low under MPR 221 as well as under the General Maximum Price Regulation. The special price relief in the form of a 6 per cent advance on men's and boys' heavyweight was not renewed after its expiration January 31, and with this special ruling gone, manufacturers feel they can look for no relief except through a revision of the two orders, MPR 221 and GMPR. The former covers special seasonal fall numbers and the latter all other underwear numbers.

Reports current in the market are that some action is contemplated to revise the whole underwear ceiling situation. The underwear numbers so covered will result from the recommendations, it is said, of WPB and the Office of Civilian Requirements. The latter agency would have in mind to include underwear numbers that have proven to be particularly scarce this year, thereby stimulating the manufacture of such garments. The part that WPB will play, it is reported, will be in limiting the order to simplified styles for underwear. This might go even further and limit the numbers to so-called utility garments, which the mills could turn out in large quantities. It is reported that OPA will insist on the dollars and cents idea and will put forward the alleged success of the price action on women's rayon hosiery to support its claims.

Hose Plants Warned of Cotton Yarn Cut

The National Association of Hosiery Manufacturers—estimating that WPB will require another month of experience with the amended form of M-317, which has affected the users of cotton yarns—warned the industry it should prepare itself for an over-all allocation of cotton yarns that may result in a reduction of as much as 20 or 25 per cent in the amount for civilian purposes.

"We express this opinion, not for the purpose of disturbing the industry," said the association, "but rather for the definite purpose of warning it that such a possibility is not to be overlooked. Certainly it is better to be prepared for reduced supplies and not experience the reduction than it would be to face the reduction without being prepared for it. Whatever poundage might be allocated to the hosiery industry would be an assured minimum poundage which already took into consideration military requirements."

Earl Constantine, president of the association, told the mill men that many may have to be contented with lesser supplies of yarn than obtained to date, while others may have to approach two or more new sources of yarn supply to offset lowered deliveries from their established sources. It was advised that hosiery manufacturers, having unusual difficulties under the order, should be prepared to present their facts in full to WPB, in case of appeal for relief, with a full statement of the grounds for appeal, addressed to the Cotton Yarn Branch, War Production Board, Temporary "D" Building, Fourth Street and Independence Avenue, Washington. It was also stated that the hosiery group feels WPB will not hesitate to amend M 317 if experience under the order indicates that serious and wide-spread hardships are resulting.

Underwear Head Criticizes Agencies

Roy A. Cheney, president of the Underwear Institute, in a year-end statement, said that "strange as it may seem, the underwear industry is not suffering, except from wounds inflicted by men in the service of the United States—men who have assumed the attributes of God but who have failed to walk humbly in the sight of the Lord and therefore, sooner or later, are doomed as Lucifer was." Mr. Cheney said also that the news broadcast from Washington to the effect that there would be plenty of infants' and children's underwear shortly would assume the proportions "of a falsification to cover delinquencies in bureaucracy, did I not have earlier and sufficient experience with the ignorance which pervades some of these quarters." He added that there will not be infants' and children's underwear in sufficient quantities until the spring is well here, due directly, definitely and without question to the red tape and shocking callousness to the welfare of the civilian population found in some government agencies.

Mr. Cheney declared the next wound inflicted on the home front was WPB conservation order M-317. "This order

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was evolved and issued without consultation with the underwear representative on the War Production Board and without consultation with the WPB Advisory Commitee from this industry. It would seem where orders of this nature are issued that the rights and liabilities of the weaving and spinning industry should not be considered alone, but that the end use involved should have priority, because it is the end use, and the production directly for that end use, which affects the armed forces and the civilian population." He pointed out that as it works out under the regulation set up and M-317: while the supply of yarn may remain the same, there are going to be many spinners with less distribution available in underwear knitting yarns, and there will also be some spinners where larger quantities will be available.

Rayon Knit Goods Get New Ceilings

The Office of Price Administration on February 8 issued a regulation affecting the prices of rayon knit fabrics. This was MPR 508, effective February 14 and Amendment 19 to Supplementary Regulation 15 to GMPR. This action was taken in line with the equalization policy of OPA, for the purpose of encouraging production of cheaper goods as well as to correct inequality which resulted under GMPR. Officials said the equalization principle is illustrated by MPR 508 and especially in the case of 100- and 150-denier one and two-bar tricot underwear fabric. Prices for these fabrics have been frozen at March 1942 levels, and manufacturers have claimed that their returns have been less on the one-bar than on the two-bar. Also, the returns have been frozen at levels which OPA officials say were not in relationship. The new order lowers the prices for some two-bar knit fabrics and raises prices for some one-bar knit fabrics, thereby encouraging increased production of the cheaper item.

The principal price adjustments of actual dollars and cents ceilings in the new regulation concern the knit outerwear fabrics in the plain and printed tricot lines which are used in the large-selling jersey dresses and blouses. Underwear fabrics, such as the large-selling circular knit products, are not reduced from the 85 cents per pound freeze in GMPR. OPA felt that to set a price lower than 85 cents would not sufficiently decrease the incentive for diverting production from underwear to outerwear cloth. Finished underwear garments of rayon construction are not covered in this schedule and will therefore continue to be priced at existing levels, which means they remain under the provisions of GMPR. It is assumed that they will be covered when the expected new ceiling regulations for all knitted underwear are completed by OPA. In tricot knit underwear cloth, the specific prices stabilize at about the levels listed in GMPR.

Branded Hose Group Narrows Court Plea

Narrowing its appeal against OPA to the section of the revised MPR 339 which limits the amount of branded rayon hosiery that may be sold under the price differential, afforded by the branded ceiling of January 15, counsel for the protesting branded houses early this month carried out the announced intention of appealing for relief. The appeal was filed with the United States Emergency Court of Appeals in Washington. In the name of Aberle, Inc., and other unspecified manufacturers, counsel charged that the provisions of Section 3 are invalid and not in accordance with law, arbitrary and capricious in that there is no lawful authority for the administrator to limit the amount of sales of any commodity to the public at large. The requirement that the complainant sell at unbranded prices all first quality branded hosiery in excess of its branded percentage is in fact such a limitation, it was stated. The appeal concedes that a measure of relief was provided by OPA in its second revision of the order, as announced January 4, in which the agency finally agreed to give branded houses an average differential of 45 cents a dozen over unbranded prices.

The Hosiery Wholesalers National Association, at its recent annual meeting in New York, adopted a motion by its counsel to withdraw its protest, filed months ago, against the original rayon hosiery order. This action was taken in view of the fact that the revised order of January 4 provided a higher mark-up for such distributors.

Huffman Gets OPA Office

Robert O. Huffman, Morganton, N. C., with thirty years experience in the hosiery industry, has been appointed head of the knitwear and hosiery section of the OPA Consumer Goods Division, according to an announcement by Chester Bowles, administrator. Mr. Huffman has been chief consultant to OPA on hosiery for four and a half months. The former head of this section was Norman Becker, who left OPA to return to private industry about the time Mr. Huffman took up his consultant duties with the agency. The knitwear and hosiery section covers all types of knitted underwear and certain types of knitted outerwear, such as sweaters, knitted gloves and scarfs and men's, women's and children's hosiery. Before going to OPA, Mr. Huffman was chief of the men's hosiery unit in the knit goods branch of the Textile, Clothing and Leather Division of the War Production Board. He is president of the Drexel Knitting Mills Co., the Drexel Furniture Co., and of the Huffman Full-Fashioned Mills, Inc., of Morganton, N. C. Mr. Huffman is also treasurer of the Morganton Full-Fashioned Hosiery Co., and Garrou Knitting Mills, Inc., both of Morganton. He was president of the Southern Hosiery Manufacturers Association in 1933-34 and vice-president of the National Association of Hosiery Manufacturers in 1939-40.

Postwar Nylon Supply Will Be Plentiful

Capacity for producing nylon yarn has been increased within the last few years to such an extent that when this yarn is no longer restricted to military uses, most of the full-fashioned hosiery industry's machinery can be put to work on nylon hosiery. This was disclosed by Robert A. Ramsdell, sales director of duPont Co.'s nylon division, speaking at a symposium on synthetic fibers. Before nylon production was frozen for use in military fabrics—mainly parachute fabrics and the cords and tapes used in the manufacture of parachutes—only sufficient poundage was available to account for 20 per cent of the full-fashioned hosiery production. Not all of this 20 per cent was made of nylon, much hosiery being made with nylon leg only and with either cotton or rayon tops and feet. Several manufacturers have asserted that if they can obtain sufficient nylon yarn it is improbable that they will again use silk. Reporting a sharp increase in nylon manufacturing capacity, Mr. Ramsdell stated that where only one type of yarn was spun before the war, there will be new yarns for hitherto unopened markets.

Large Gains In Acetate Hose Yarns

Shipments of acetate rayon yarn in 1943 to the hosiery trade increased nearly 100 per cent over the preceding year, according to the Textile Economics Bureau. Shipments rose last year to 8,400,000 pounds, which was 5 per cent of the acetate total last year. Full-fashioned producers took more than 4,000,000 pounds of acetate yarn in 1943, during which time the same mills used over 28,000,000 pounds of viscose and cuprammonium yarns, for a total of 32,000,000 pounds.

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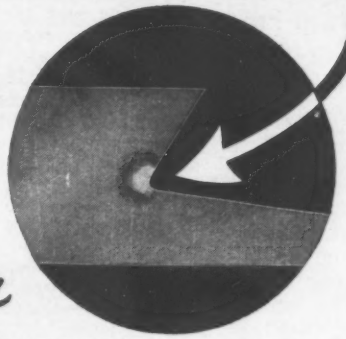

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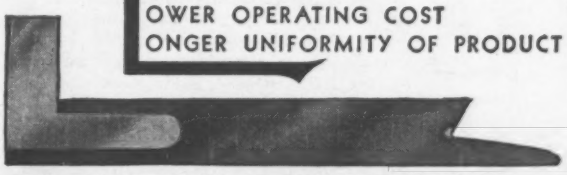

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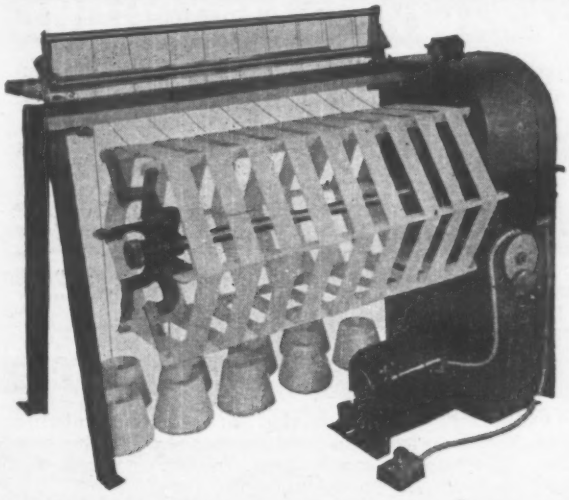

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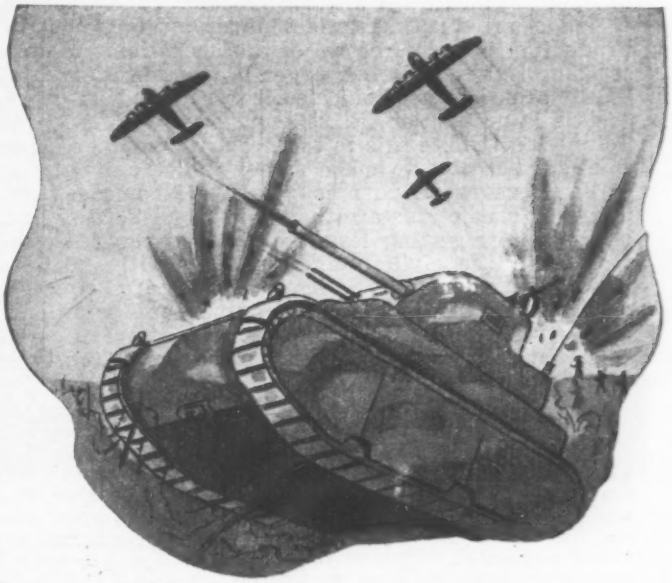

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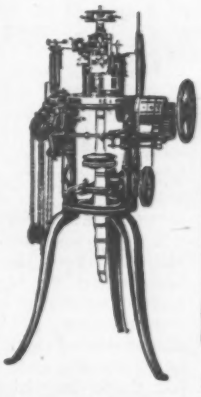

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TRENDS—YARN MARKETS

Larger Military Demands for Cotton Goods Make Supplies Tighter for Civilian Trade—Situation in Rayon Yarns Clouds 1944 Outlook for Non-Rated Users—Worsted Knitting Yarn Production Up, but Demand Keeps Ahead of Supply

Philadelphia, February 16, 1944

IN ALL THREE types of sales yarns, the supply problem for makers of civilian lines has become considerably more acute in the last month. This means that cotton, rayon and worsted yarns are more difficult to locate for making hosiery, underwear and outerwear that do not enjoy a rating, unless under military contract or special War Production Board directive or authorization. Main reason for the increasing tightness is the larger proportion of such counts being taken by the armed forces; but also involved, at least in cotton yarns, is the decline in production in 1943 compared with the peak reached in 1942. Spinners attribute this to the drop in poundage coming from marginal spinners not able to make money under current OPA ceilings.

As more rayon yarn is going to be needed for the military tire program, predictions are that the second half of this year will see the hosiery trade getting less. In worsted yarns, there is heavy demand from both the civilian and military, with spinners unable to keep abreast with demand. So many of them are being hit by the manpower problem that no increases in output are possible now, even though all the wool needed is available. Recent Washington statements indicate that early relief in ceiling prices on cotton types is not probable.

Cotton Yarns

The cotton yarn trade has been making adjustments since the first of the year under revised Order No. 317, which set up percentages for rated business for the cotton goods industry. Under this order, minimum and maximum percentages were set up for cotton sales yarn spinners, but during the last month the War Production Board has indicated that for the present at least all spinners should attempt to reach the minimum rated percentages and not be compelled to go up to the maximum. During the last month, adjustments under this order have continued, but so far complaints from manufacturers of civilian goods in the unrated classifications have asserted that they have been getting considerably less yarn than before this order was issued. There are trades, such as hosiery and underwear, that are unable to get ratings except for special type garments, and protests have recently been filed with WPB claiming that mills were unable to get as much yarn as during the latter part of last year.

In most counts there is a larger demand for rated business than spinners can handle and still remain at their minimum rated percentage, but there are a few spots in the yarn market where demand is not active—where spinners claim they are not able to book enough rated business to permit them to reach their minimum quota. In such instances, spinners are now making an attempt to have WPB change the order so that they can sell this production for non-rated lines. Policy of WPB up to the present seems to be to give ratings for civilian lines after the situation becomes acute, examples of this being in men's work socks as well as in children's and infants' underwear. But in this connection, attempts are now being made by underwear manufacturers to obtain ratings on other civilian lines so that spinners will be able to supply them under the regulations of No. 317.

With labor costs being increased, the question of an advance in the cotton yarn ceiling is again being discussed. It will be recalled that the Carded Yarn Group had arranged a meeting with the Office of Price Administration in Washington January 20, when it was planned to ask for a change in selling terms to net and no freight payment, which would have given spinners an indirect advance in price. This meeting did not take place, and it was said that the request had been withdrawn. Most manufacturers feel that any further attempt to obtain price relief will be made in the regular manner of having the ceiling revised upward. But there is some doubt in the trade that this will be done, in view of the directive issued by Economic Stabilization Director Vinson last November 16 and explained again by him within the last month. Under this directive, he lists three methods of obtaining price relief, one of which is by a pooling arrangement to which spinners have not taken very kindly.

With new wage increases being made in this field, spinners are strong in their ceiling complaint. Some of them have predicted that unless something is done in this connection they will not be able to supply as much yarn for the armed services as in the past, and several have pointed out that they cannot long continue to sell at a loss. Military demands for cotton yarns are showing little tendency to taper off, and there have been, in fact, several resumptions of programs that were discontinued late last year. In this category are camouflage cloth and cotton duck, in which new orders are being placed for delivery over the second quarter of this year. Also, the army has in the last month been buying cotton goods and garments at an active rate, having recently asked for bids on 40,000,000 pairs of wool socks which are to be made in part from cotton yarns. Indications are that military demands will continue at about the same pace as far ahead as one can see at present. Outlook for the civilian trade is dark.

Rayon Yarns

Rayon producers are beginning to wonder how much yarn they will be able to provide for civilian goods during the second half of the year, when the tire cord program is in full swing. If the war continues and military purchases of rayon products proceed at their present rate, there probably will be further sharp reduction in poundage available for weavers and knitters of civilian lines. The effect of the tire yarn program for the government is already making itself felt in the tightness of 150-denier viscose process yarns for weavers and knitters. Predictions are now being made that the second quarter of the present year will see a further scaling down in available poundage, and it is expected that the 240,000,000 pound annual rate of tire cord production will be reached during the third quarter. Second quarter supplies of yarn may be further reduced by a projected purchase of up to 10,000,000 yards of a special parachute cloth. This will be made from 300-denier yarn, and as a result, producers will have to make more 100 and 125-deniers for civilian use to spread out their raw materials.

Shipments of rayon filament yarn to domestic customers in January totaled 41,500,000 pounds, compared with 43,200,000 pounds in December and 37,900,000 in January, 1943. Stocks of rayon yarn held by producers at the end of January amounted to 7,600,000 pounds, compared with December stocks of 6,100,000 pounds.

Worsted Yarns

There were substantial increases in the production of worsted knitting yarns in 1943 compared with the previous year, but the supply was far under demands for these yarns. This was due to the fact that 1942 production was very small and to the large purchases of worsted outerwear for the armed services and more recently for shipment abroad under our foreign relief and rehabilitation program. There is also a much larger than normal demand for sweaters and other knitted outerwear from outdoor workers in the war industries. Spinners are unable to step up production because of the manpower problem, even though they have unrestricted wool quotas, and there is nothing to indicate any substantial change in this factor during the first half of this year at least. In addition, spinners must turn out about 15,000,000 pounds of wool knitting yarns for lend-lease.

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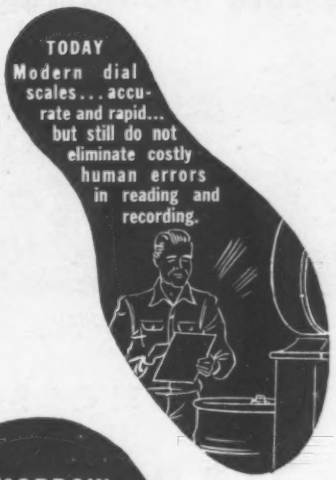
STEP INTO TOMORROW with your WEIGHING

YESTERDAY
The beam scale was popular... but slow, tedious, cumbersome!

TODAY
Modern dial scales... accurate and rapid... but still do not eliminate costly human errors in reading and recording.



TOMORROW
PRINTED Weight Records will be the accepted practice. The Toledo Printweigh, now serving in hundreds of war plants, will give you new accuracy in your weight-control.
Toledo Scale Co., Toledo, Ohio

TOLEDO PRINTWEIGH SCALES

WE'RE SAVING MORE THAN 50% ON OUR LOOM LEATHER COSTS SINCE WE SWITCHED TO BONDARON

Hundreds of mill operators have found by actual experience that the *most economical* leathers to use are the *finest they can buy*—which, of course, means

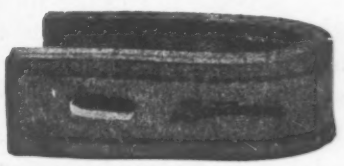
ORIGINAL and GENUINE
"The Leather with the Hair on"

Bondaron
REG. U. S. PAT. OFF.
TEXTILE
LEATHERS

Why not try them on your own looms?

SEND FOR BOOKLET 202

Cotton Loom Picker



Lug Strap

Harness Strap

Check Strap

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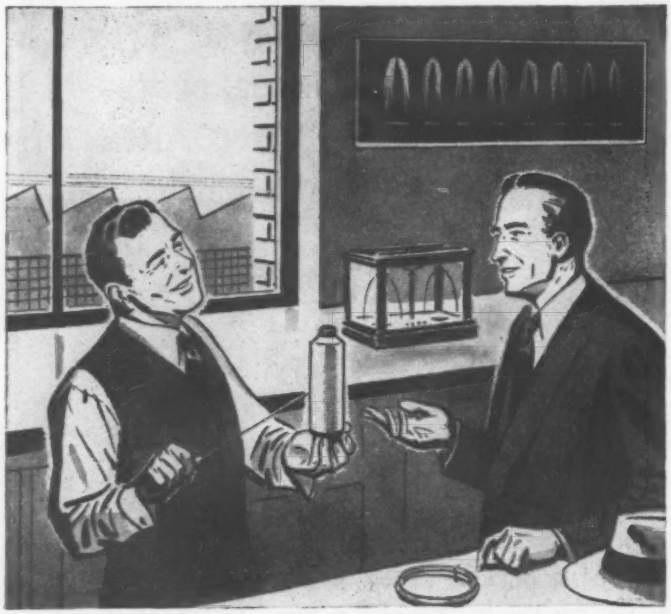
617-623 ARCH STREET PHILADELPHIA, PA.
Manufacturers of Textile Leathers for Nearly Half a Century

VICTOR SERVICE ENGINEERING on the JOB



Change in Traveler Style permits Higher Spindle Speed —Reduces Fly Waste

In an effort to speed up production to meet pressing schedules on war orders, a northern worsted mill, running several numbers on 1⅞", flange 2 horizontal rings, discussed the type of traveler used with a Victor Service Engineer. He recommended replacing the wide flat wire traveler then used with a narrow style.

The new traveler reduced friction on the yarn, and it was possible to run the spindles faster, increasing the doffs per day. Fly waste was reduced by a considerable percentage, thereby lowering the overall cost of production.

When such traveler questions arise, the answer depends on many conditions, which are rarely alike in any two mills, even when the work being run is apparently the same. A Victor Service Engineer has the experience necessary to help you add up all these conditions, and your answer will be the right traveler for better production, better quality. Why not talk over the jobs that are giving you trouble? Write, wire, or call . . .

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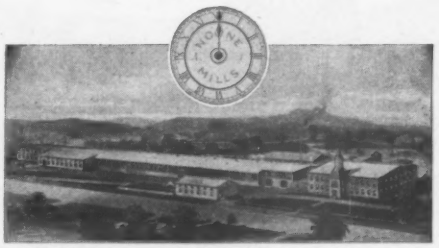
VICTOR
Ring Travelers

WILLIAM R. NOONE & COMPANY

A. ERLAND GOYETTE, President
ARNOLD T. MALONE, Treasurer

105 Washington Street
Boston, Massachusetts



Established 1831

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Ask for NOONE'S SLASHER CLOTHS by name or style number.

Long experience in manufacturing Slasher Cloths and continuous experimenting have enabled us to produce several types of Slasher Cloth, each especially constructed to give best results on the particular kind of yarn to be sized.

The proper Slasher Cloth for each tvpe of yarn means properly sized warps, less loom stops, easier weaving, more and better production, *and lower cost.* We can supply you the right cloth for your particular work.

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We are the oldest manufacturers of Slasher Cloth in America. Our experience enables us to build a Slasher Cloth that will meet your most particular demand. Use NOONE'S SLASHER CLOTHS and be convinced.

Sole Agents for

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Use Noone's Roller Cloths, Noone's Slasher Cloths, Noone's Clearer Cloths.

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You can prove these advantages of "Texalox" without cost. Just write us giving length and diameter of roll, the type of fabric you produce and we will send you free, a "Texalox" roll covering. Write today to The Carborundum Company, Niagara Falls, N. Y. Manufacturers of Aloxite Fillet Cloth—grinding wheels—sharpening stones and coated abrasives.

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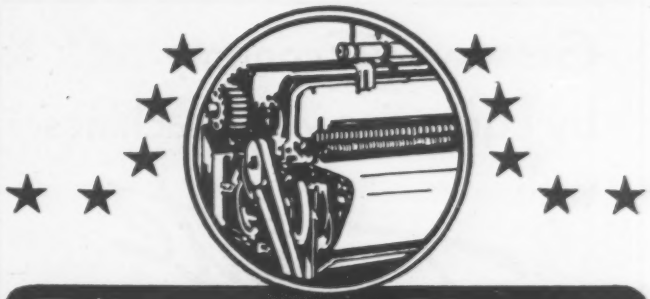

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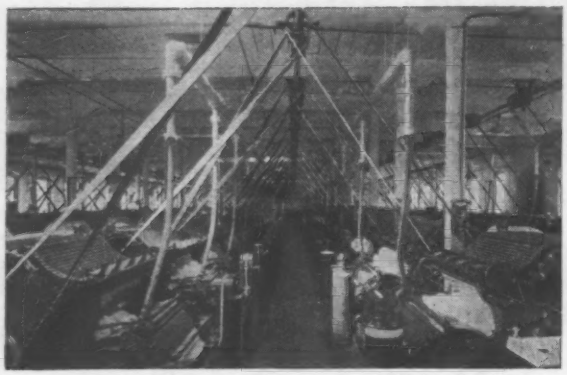
Get 4-way Economy by equipping your machines with

Tannate

LEATHER BELTING



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Over many years, experience has proved to numerous textile mills that Tannate's great strength . . . *averaging 1-3 to 1-2 higher than choice oak belting* . . . and its exceptional pulley grip keeps machines producing at high speeds, even under varying loads.

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Equip with Tannate . . . get more uniform work; less spoilage; fewer shut-downs; reduced unit costs.

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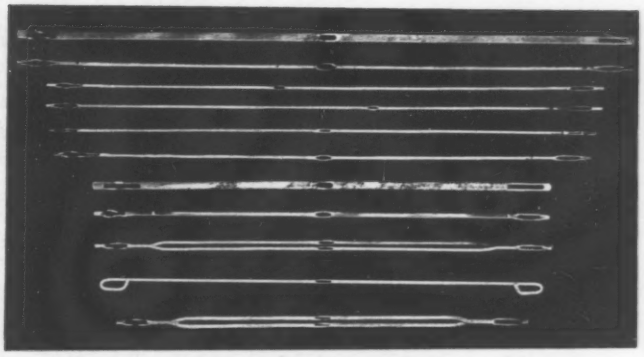

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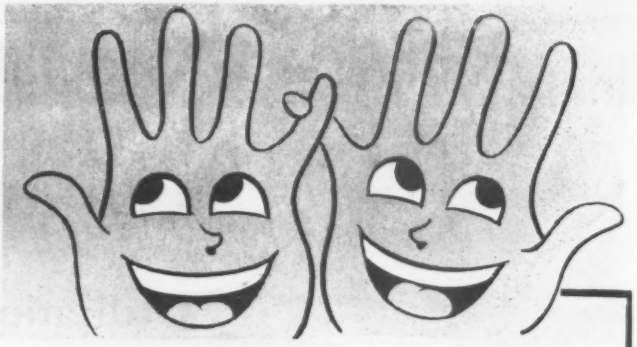

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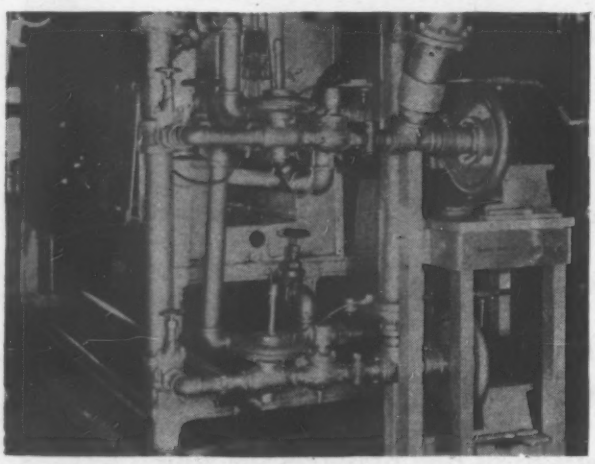

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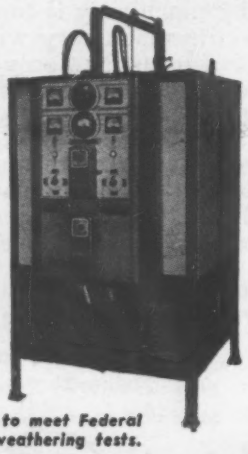
The Twin-Arc Weather-Ometer has full automatic control of light and water periods. The Atlas Cycle Timer unit can be set to reproduce any combination of weathering conditions. A direct reading thermal regulator, automatic shut-off switch and a running time meter is included on the control panel. After setting exposure cycle on the control panel the Weather-Ometer is safe to be left in continuous operation over night without attention except to replace carbons once in 24 hours.



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Recommendations will be made without obligation. Write

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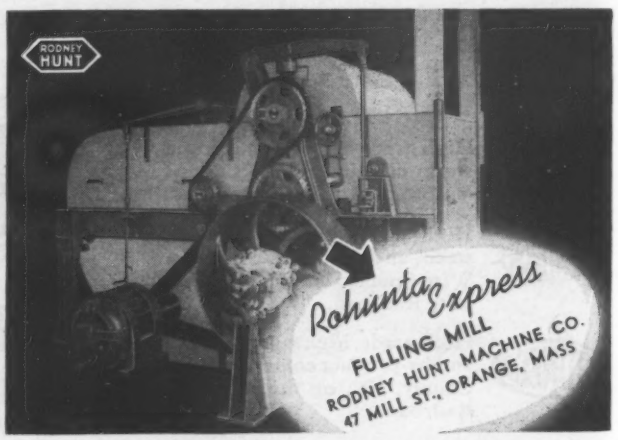

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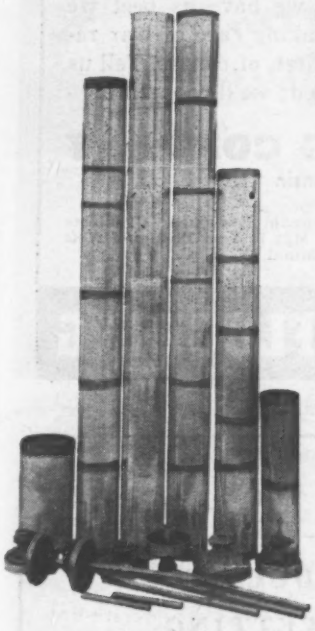
John: Why not let the Penick & Ford Textile Laboratory in Atlanta check specifications on that cloth?

Jim



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WE LIKE TO DO A GOOD JOB and will appreciate knowing your requirements as far in advance as possible.

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Look to your STUFFING BOXES

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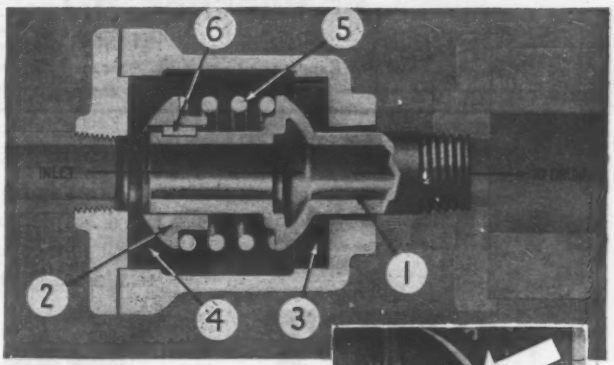
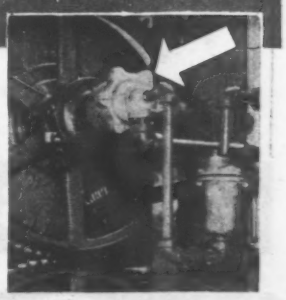


Note the Trouble-free, PACKLESS CONSTRUCTION

Nipple (1) is fastened to roll or drum. Collar (2) is keyed (6) to nipple. Carbon graphite seal ring (3) and bearing ring (4), which eliminate oiling and packing. Spring (5) is for initial seating only; in operation joint is pressure sealed—self-adjusting. Ball and socket joints at nipple and rings absorb angular misalignment; space between nipple and housing provides for lateral misalignment.



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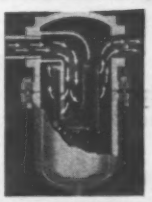

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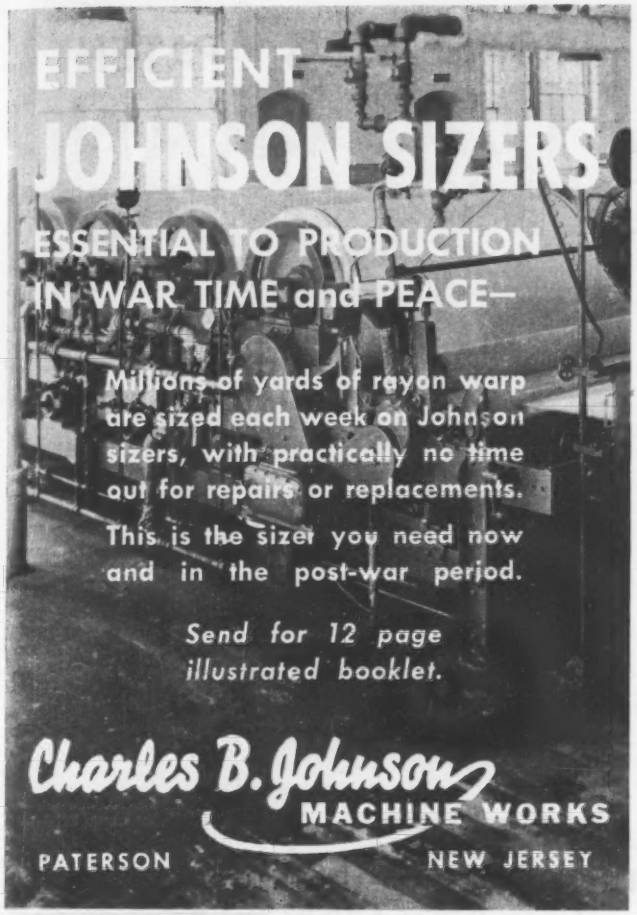
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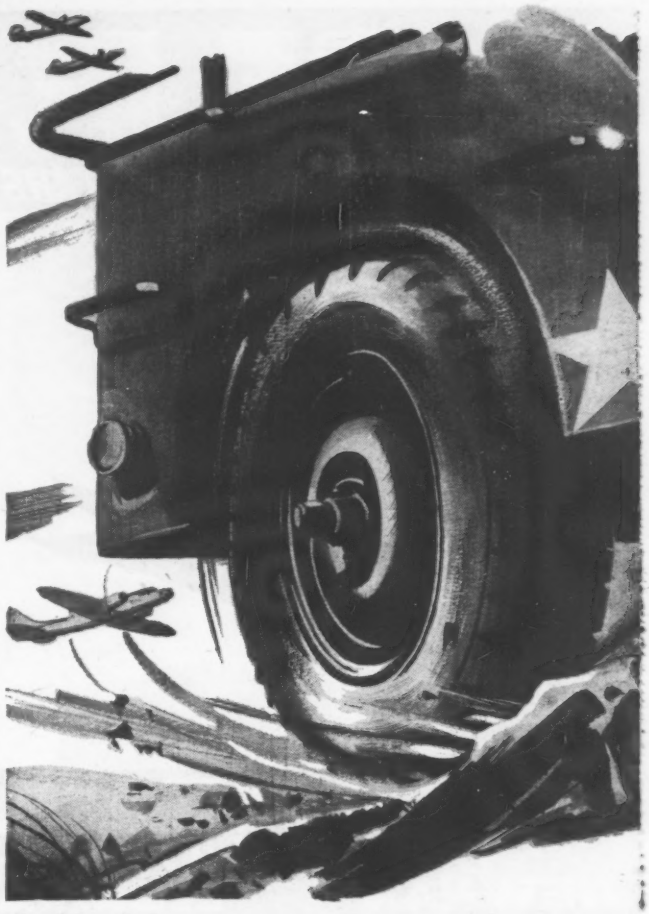

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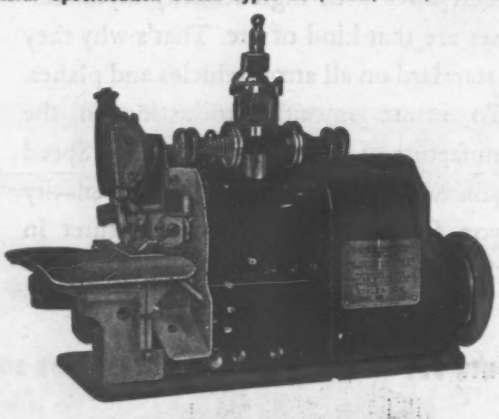

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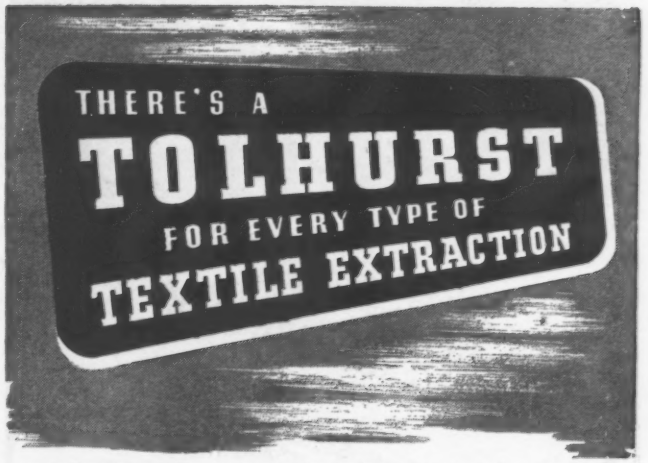

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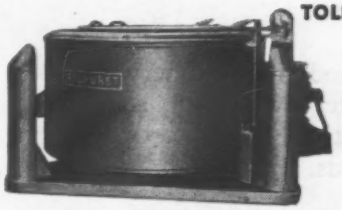

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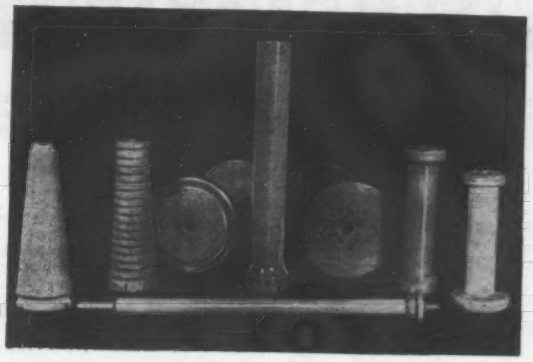

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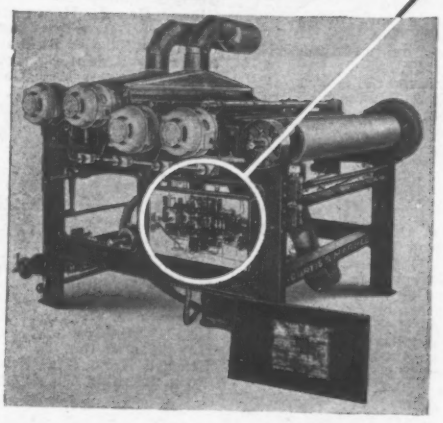

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NO. 2 OF A SERIES

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For it was Berthollet, together with his son, who worked out the machines and the system by which Scheele's discovery of chlorine could be put to practical use. This system was introduced into Great Britain by James Watt, inventor of the steam engine, in the late 1700's. And in Manchester, in the early part of the 19th century, a bleacher using the Berthollet process was given 1400 unbleached pieces on Tuesday and returned them bleached and folded on Thursday. He took two days for what was formerly a six months' job—marking one of the most important advances in the history of cotton finishing. Chlorine still plays such an important role in textile bleaching that when it was called into action during the present war, the restrictions on its use were keenly felt throughout the industry.

All the bleachers of today who apply chemistry to industrial processes are, in spirit, descendants of Chemist Berthollet. His history must surely be gratifying to them — for it shows that an innovator may be honored in his own time . . . and, unlike the prophet he so closely resembles, even in his own country.

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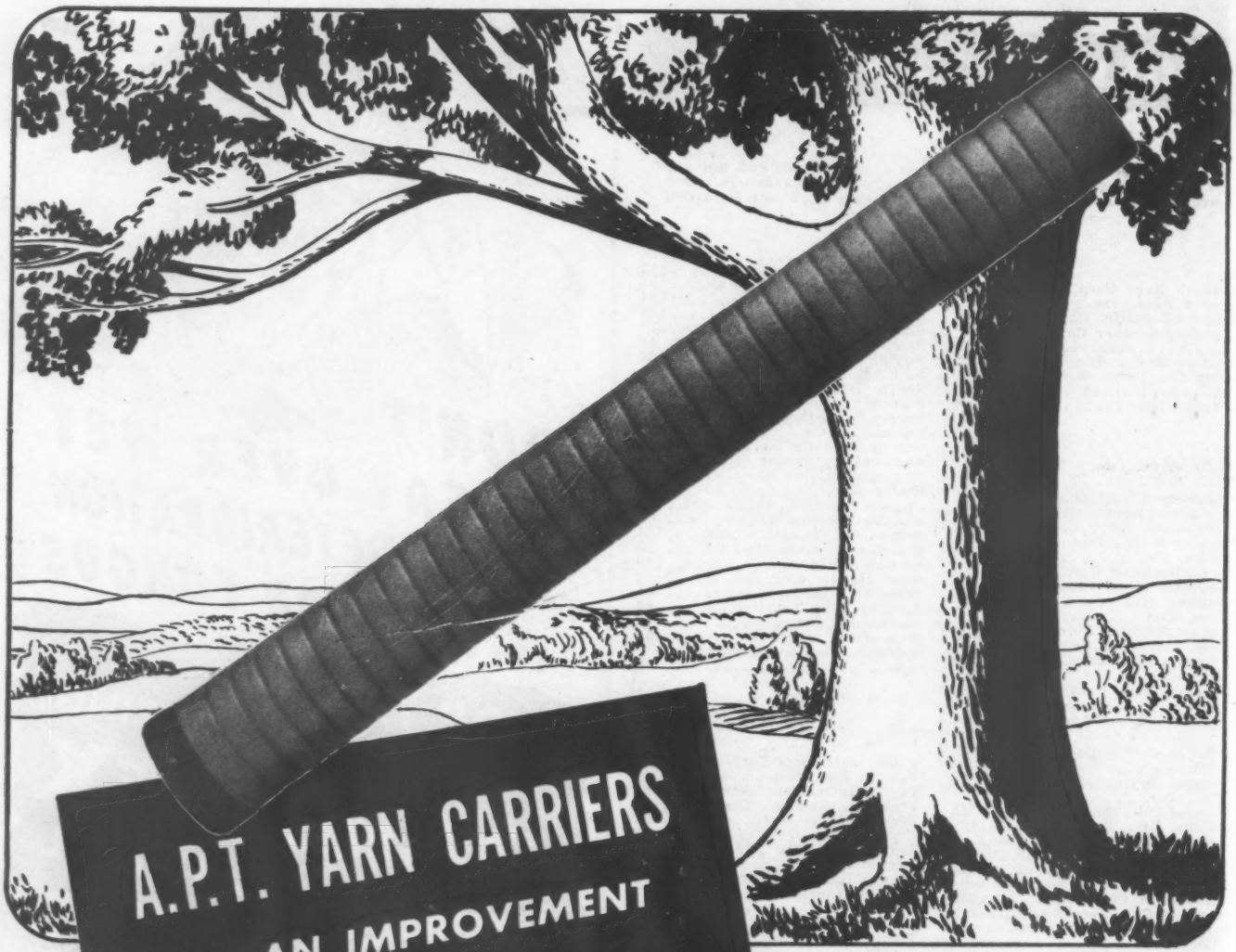

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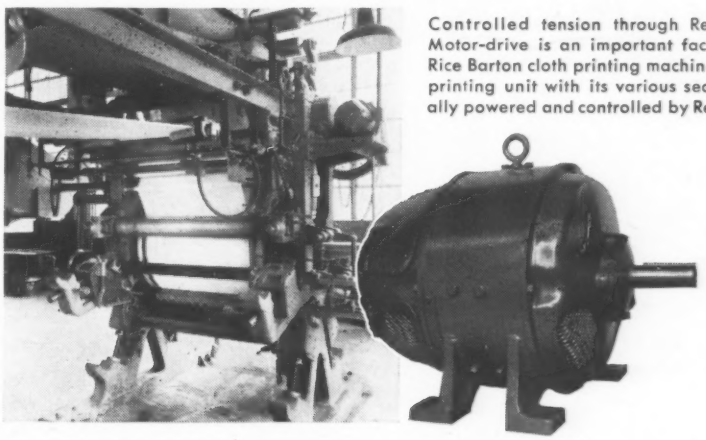

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